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Through the Year With Extracted Honey—No. 2

By Morley Pettit.

IT is outside the scope of this paper to describe our method of rearing queens, but it would hardly be complete without a short account of how we requeen. I have already stated that I aim to requeen a colony whenever the queen fails or swarming impulse develops, yet we cannot very conveniently have queens of our own rearing before July or August. This makes it necessary to buy some southern queens to tide us over until our own are ready. When these queens arrive in May and early June, they are first introduced to nuclei placed over the colonies with screened feeder board (I call them nucleus boards) between, to allow the nucleus to get some colony heat. It is well recognized that queens are more easily introduced to nuclei than to full colonies, and the loss ensuing from a failure is far less. Again, queens are most easily of all introduced to colonies when they have just been removed from the brood nest. This is why I seldom try to introduce queens direct from the mail to full colonies, but give them at least a week in nuclei first to recover from the fatigue of traveling. This reduces the introduction loss to a low percentage.

Although it is not quite orthodox, we save a great many ripe cells from brood chambers where we find them, place them in nuclei, and when they come only from good stock they make splendid queens. At the time of putting the queens down, in June, I endeavor to graft cells at most of the yards, and ten days later, when the cells are ready to place in nuclei, the brood which was put up all over the yards is ripe and in the best condition for making nuclei. I am very much of a beginner at queen rearing, but with the purchased queens, and the queens from natural and from artificial cells, we manage to accumulate a fair stock of queens laying in nuclei in all the yards by the time it is necessary to make a general slaughter of queens of doubtful value for further use. As previously stated, all two-year queens must go, unless there happens to be one of very extra value as a breeder. All two-season package queens must go. The work

of one-year queens is scrutinized carefully. If the colony has done well and the queen is laying nice, even sheets of brood, she can stay. If not, she must go. Young queens are also judged by their brood, if possible before they leave their places in the nuclei. If a queen cannot produce even brood, that is, if she does not



Morley Pettit in a field of wild raspberry in Ontario.

lay in every cell as she goes along, an egg that will hatch, I do not like her, and will not keep her if I can help myself, even though I have paid good money for her.

Our method of introducing queens is very simple and gives 100 per cent success, provided the colony is in the proper condition, that is, queenless and celless. The queen is placed in a flat, open screen cage which is plugged with some soft comb which the bees will chew away in a few hours. This is pushed in at the entrance just so it can be pulled out again next day. It takes a little practice to know how hard to pack the soft wax plug. Newly built comb such as one sometimes finds in odd places in nucleus boxes is the very best to use. It should not be very hard.

Now I have taken up Fall Preparation, Wintering, Spring Management, and Requeening, and have the decks fairly well cleared for Supering,

Taking Off, Extracting, and Preparing for Market.

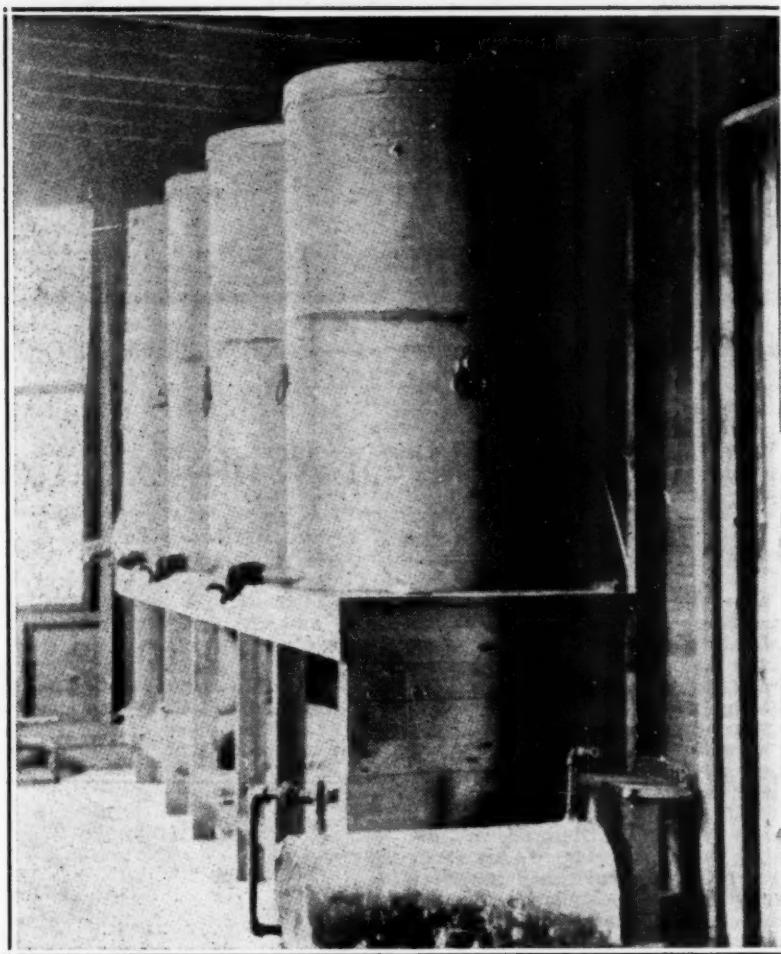
We generally attach considerable importance to the time and manner of giving supers. We cannot afford to put on supers faster than they are needed. We have no more than enough to take care of a good crop and we dole out our supply from time to time where it will do the most good. It may be all right to place the empty on top of the stack, as some do, but I have always felt that bees store better when the empty combs are placed directly above the brood, and below what is already stored. I want to see into the brood chambers every eighth or ninth day during the honey season, and when a helper lifts off the supers he notes whether more room is needed, while I am examining the brood chamber. For the first three supers, the next one is added just as soon as work is well started in the previous one. Then if conditions indicate that more space may not be well filled we give a super of foundation, if anything. This tends to hasten ripening and usually gets a set of combs built with very little cost. The food chamber is kept low enough in the stack to make sure of its being very well filled and sealed. It should never be placed next the cover. The top super should have the cover well sealed down and not loosened, when escapes are going on, to make it quite safe from robbers after the bees have left it.

With yards rather widely distributed and farmers liable to put in fields of buckwheat almost anywhere over the territory, our light honey is not safe on the hives after the first of August. In fact it was still July when our best run of buckwheat came in 1923, and in some yards combs of lower supers had to be sorted carefully, to leave for dark honey more of the last gathering of clover honey than we liked. In putting on the bee escapes we find it convenient to lift the supers all down, sorting them as we go. Unless the yard may expect to gather a fairly large crop of fall honey, the food chamber goes next the excluder and on that a super of empty combs. In

many cases the foundation super given last will have only unripe honey and it is left instead of the empties. On this is placed the bee escape and the supers of honey. The greatest care must be exercised to make the supers above the escape perfectly bee tight, for they will be unguarded. When we start putting on escapes we do nothing else until the first have been on over two nights. By that time the bees are well out, unless brood or queens are up. Records and close observation while handling the supers keep those conditions down to a minimum.

For drawing the honey home, two trucks work to the best advantage. If great care has been exercised to prevent getting robbing started, when the escapes go on, two active men with a truck apiece will strip a fifty-colony yard before the robbers have much chance. All escape boards come home in trucks to go out in the Dodge to the next yards. As far as supplies hold out, I like to get all supers home and stored before going ahead with the extracting. As all of our storing and extracting is on a concrete floor laid on the ground, my mind is quite at rest as to the support of any load we may be able to pile in. In the event of cool weather the storeroom can be kept warm with the boiler, and the four-horse steam engine has lots of power to throw even thick honey from the combs.

What appeals to me most in a central extracting plant is the opportunity it gives to have a first-class building with the best equipment permanently installed, and to work regular hours under comfortable working conditions. After working for years in little houses at outyards where it was a fight with robbers, and toiling heat and lack of water and conveniences, we concluded it was a poor business that would not afford some comfort in its work. Now we can stock a yard in anywhere there is a suitable place, and when the honey is ready to come off, the escapes and trucks get it off and home, where we can extract it in a businesslike way. In planning a building, I gave some attention to general factory buildings and noticed first that outer walls are made mostly of glass, ceilings are high, and ground floors are well-surfaced concrete. I wanted to be able to drive right in with a load of honey and close the doors to keep robbers out. The building has running water, and every ground floor has a drain for flushing out. The drains lead to a cesspool which takes care of any diseased honey which might possibly be in the washings from the floor. The building is lighted by electricity, but the extractors are run by steam power. A six-horse-power boiler fired by coke melts the cappings, heats the knives, runs the engine which extracts and pumps the honey to store tanks, and warms the supers when necessary. In cold weather this accommodating boiler also heats the garage where the cars are kept, and the office and workroom upstairs, to say nothing of the valuable service it renders in making feed and melting wax. It is an in-



Storage tanks in Pettit's central extracting plant.

dispensable feature of a central plant, and incidentally, I believe I hold the record for being the first to use steam power to run extractors. When steam is needed to uncaps and melt the cappings, anyway, it is eminently more satisfactory than a gas engine. Then our rates are such that one must pay for electric power for twelve months to get the use of it for one or two. I find that a pound of coke will uncaps, melt the cappings, extract and pump nearly fifty pounds of honey, besides warming the supers and the honey to help clarify.

In 1924 we ran three full days and some parts of days to extract the light honey. It was a very short crop. In the three full days we did everything, including sharpening the knives twice a day, cleaning up, etc., inside the ten hours, making between eight and nine hours of actual running, and extracted ten thousand pounds each day. Two men uncapped and cared for the combs, supplying themselves from the stacks in the next room and putting the combs back into the supers and piling them. My duty was to fire the boiler and operate the machines, handling the combs from the uncappers to the extractors and out again where I stacked them flat. There were just three of us working, and the good little steam engine and two eight-

frame extractors. The three-quarter-inch pump we secured from Root's twelve years ago had no difficulty keeping the honey out of our way.

For rapid work in uncapping it is necessary to have combs even and nicely bulged, to have a good head of live steam in the knife, a good, long, straight knife well sharpened, an active operator with a strong wrist, and bright light and plenty of fresh air to work by. With experience and care of the knife, it is possible to do rapid work on honey warm from the hive with a standard unheated knife; but I can place my knife in the hands of an ambitious greenhorn and after one or two days' practice he will keep up with the fastest cold knife operator under the best conditions of honey, and when the honey is inclined to be gummy the latter will not see anything of him after the first half hour. This may seem like boasting, but I believe it to be merely a simple statement of fact.

There are three fundamental errors in the standard uncapping knife—the short blade, the crooked handle and the beveled back. Each one of these is calculated to set a man back on his day's work, and with all three combined it is only by great skill and patience that he does a day's work at all. Of course, you can get

used to them just like you can get used to walking with peas in your boots; but why accustom yourself to any unnecessary inconvenience? There was no doubt that the short blade was the cause of the crooked handle; and why the short blade or the bevelled back no one has ever satisfactorily explained.

About 1915 Mr. Chrysler, of Chatham, Ontario, mentioned to me that he was using a straight, flat blade for uncapping. It was not long, but would reach across his shallow frames. He found it more satisfactory than the stock knife. There was nothing new about the use of a straight, flat knife. It was the first kind ever used; but it had been entirely discarded. Chrysler revived the straight, flat knife, and deserves credit for it, as for an invention. It was a revelation to me when I learned about nine years ago, and afterwards proved for myself, that a straight knife which would reach across the comb was better for uncapping, even without steam, than the standard knife. In 1918 I had two long, straight knives steamjacketed, and they proved revolutionary, developing such speed as I have already described.

Of the two systems for storing the honey, gravity versus pump, I have no experience with the former, but am so well pleased with the latter that there is no desire to change. Both have their advantages, and if I found it necessary to build on a sidehill, doubtless the system would be gravity, but it is a great saving to have storing and extracting on the same floor and let the pump do the work. The only effect of the pump is to hasten granulation, or, if run when not full, to cause some foam. Adjoining the extracting room is the tank room with twelve tanks holding 500 pounds each. A galvanized iron pipe conducts the honey from the pump to the ceiling and along over the tanks. There is an outlet over each tank which is left open when that tank is being filled. The rest of the system is closed, so that honey can be let into any tank by simply opening the valve over it. The system drains to one point, where a valve is opened at the end of the day to leave the pipes empty for the next day's start.

We have not strained honey for quite a number of years now, and at the rate we put it through the extractors it would be rather difficult, although it might be possible. The honey from the capping melter is strained before it joins the honey from the extractors on its way to the tanks. This warms the whole fairly well, and each tank as it is filled is covered to retain the heat and allowed to stand for at least three days before being tinned up. This allows all foreign matter to rise so completely that very little indeed ever appears on the surface after it is tinned up. Just before draining each tank into selling packages, the foam and a good quantity of thin honey, if any, is skimmed off the top so that all is clear and thick.

Our whole crop is sold in the

granulated form in 10-pound, 5-pound and 2½-pound lithographed pails. One might say that all Canadian honey is sold in the granulated form. The only complaints we receive with reference to granulation come when we have heated it too much to assist clarifying when extracting, not so as to injure the flavor, but so as to retard granulation, or prevent a nice, even grain. Whenever a customer receives a shipment which is not hard and firm there is suspicion of adulteration, and we have to be pretty careful not to do anything which will interfere with normal granulation.

The Little Standard

See the article on page 113, American Bee Journal, March, 1925, "More Honey at Less Cost," by B. F. Kindig.

Of all the articles which have come to my attention since I have been keeping bees, this covers the subject in hand, particularly that part regarding the size of the brood chamber, more clearly than anything yet published.

In the methods of manipulation now advocated by some, they seem to be,



Slatted panels used as windbreaks in some of the Petit apiaries.

as it were, telling the world, "Our hives are too small," although they say, when they mention hives: "Stick to the Standard." Yes, it listens good; it is convincing, but it is another one of those conditions which in a way make us realize the price of progress. Most beekeepers would appreciate a standard hive (I would), but how shall we know which one to adopt as standard? Shall we take the one they call standard while the same voice is telling us it is too small?

The wise ones will condemn the Heddon and all similar brood chambers because they require two or more stories for brood, cause too much manipulation, have too many parts, cast too many swarms, and lead to extracting from brood combs, a very undesirable condition, and a

host of other objections; and in the next breath they are telling us the ten-frame Langstroth hive needs a second story for spring brood rearing, and it is also good to have them in two stories for wintering (all good advice). In fact it is necessary to get the maximum number of young bees for the harvest. And still they are recommending it as a standard.

I have tried most everything from eight to thirty-two frames as used in the Long Idea hive. You will remember the great praise given some time ago to this long hive as a swarm preventer, but my experience with ten of them was, they have the old, little eight-frame hive backed clear off the map, as a swarming hive. The instinct to store honey above the brood is so strong that they will crowd the queen to at least the lower half of the Langstroth frame and swarm with both ends full of empty comb.

The ten-frame Jumbo was not the answer to Dr. Miller's dream of a non-swammer; I have verified his conclusions by more extensive experiences of my own with this hive. It will produce a strong colony and will swarm almost as readily as the one-story, ten-frame standard—the spacing seems to be too close for the deep frames.

Why do these advocates of the Little Standard advise the size of a hive as standard which requires the manipulation that defeated all the little hives that have gone before them?

C. F. Strahan, Linwood, Neb.

(The experience of our correspondent is similar to that of a North Carolina beekeeper who used a large number of Jumbo hives and found that they swarmed about as much as, if not more than the ordinary L hive. But he did not realize that the narrow spacing had something to do with it.

The large hive has a field of opportunity before it. But the standard Langstroth hive is so well established in the U. S. that the larger frame will probably not compete with it on a large scale for many years. But it is gaining ground.—Editor.)

Feeding

The 5-pound cans and inverted covers with holes in did not suit me, for I had to lift off quilts, so I made a new feeder; have not seen it in bee journals or heard about it. It is easy to feed with.

Take can or honey pail, make a hole in center of cover one-half inch hole, make a spout 2½ inches long with holes on sides, lower end closed; solder on hole in cover and feeder is done. Now when you want to feed go to hive, cut a slit in quilt in center of cluster and you do not have to disturb a bee. All you do is stick spout through slit. With inverted feeder you have to lift quilt, which disturbs them, and again when you take feeder out. But with spout feeder no bee will bother you.

Wisconsin.



Established by Samuel Wagner in 1861.

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Water In Shipping Bees

No water is needed in shipping bees, if there is no brood and if the food is not too hard to be consumed. Water is even injurious to them, if they take it, as it loads their stomachs unnecessarily. We find that Jay Smith is of similar opinion, for he says that water is unnecessary for package bees.

Appearance of Queens Versus Prolificness

We must not judge queens by their appearance. I find it stated by J. E. Crane, in the May number of *Gleanings*, that "we sometimes find our most prolific queens small of abdomen and of inferior appearance." Same here, Mr. Crane. Although I like a large queen, I have often had queens that deceived us by their appearance. So do not condemn a queen just on her looks. Give her a test.

Swarms In April and May

A few days ago, a beekeeper made the remark that he once harvested, in April, a large swarm, coming from somewhere, but that it did not stay put. Likely that was a swarm that deserted its hive for want of food. Unless such a swarm is fed, it will be likely to go elsewhere. Some May swarms are starvation swarms. But

A real swarm in May
Is well worth a load of hay.

Co-Operation Among State Associations

A letter from President Wooldridge, to the managers of the Illinois Short Course in Beekeeping at Urbana, was read at the April meeting, urging that Illinois pass resolutions to work in agreement with the beekeepers of Indiana in requesting the establishment of field stations at different points for support of the work of the apriary department of the Bureau of Entomology at Washington. A motion to this effect was made at the meeting and passed unanimously.

Queen Piping

In the British Bee Journal for April 9 there are three articles concerning the piping of queens. The first article, by H. M. Stich, asserts that he has often felt the queen pipe. According to this writer, "the comb and frame are set in vibration by the queen piping." He also states that Dr. Armbruster mentioned the fact "that the vibrations of a queen piping were sufficiently violent to be detected by the fingers holding the frame lugs of a comb containing a piping queen." As to seeing queens pipe, we have been there ourselves more than once.

Beg Pardon

The printer acknowledges he was at fault, in failing to make the proof corrections of page 224, of the May number, "Selling Honey to the Indians." In the third paragraph of the first column, line 15 should read, "near the present site of Cody. To". In the third column the fourth paragraph should begin: "Not long ago a band of Crow Indians made me what they must have thought to be a nice present, a couple scalps of Piegan Indians, with whom they are at war from time to time. The Piegans live in North Montana, but they come down this way, once in a while, to steal horses from the Crows."

Tunnels for Bees to Reach the Outside

When bees are kept in observing hives, in living rooms or other places, it is sometimes necessary to place a tunnel for their outlet and entrance. They have several such observing hives at the University experiment rooms with a tunnel two feet or more in length. Dr. Wallace Park made the statement that at a State Fair at one time, he had a tunnel 22 feet in length from the hive to the outside and the bees used it very nicely without difficulty.

Cellar Temperatures and Wintering

A discussion of the proper temperatures for cellar wintering brought out from Professor Paddock the fact that they find, after repeated tests, that the proper temperature for a cellar for bees is 42 degrees. Professor Paddock avers that in localities where the atmosphere contains more moisture than at Ames, the temperature may be higher. Here, in Illinois, from 42 to 48 degrees is the proper temperature for bee cellars. Find the degree at which your bees are quietest and keep it at that.

The International Congress Report

We are informed, by the secretary of the International Congress, Mr. C. Vaillancourt, at the Ministry of Agriculture in Quebec, that the report of the sessions of the Congress of last September, at Quebec, is now being printed, both in French and in English, and may be had at \$2.00 per copy, or \$2.25 by mail. A special price will be given to associations of beekeepers through their secretaries, when ordered in quantities.

This report will be especially interesting, as it will contain all the addresses brought or sent to the Congress, many of which could not be read at the sessions because of the lack of time. Most of these addresses are from leading men in beekeeping. Send your orders to C. Vaillancourt, at the above address. As we understand it, the subscription includes membership in the International Association.

Foulbrood? No!

One of our good friends writes us:

"That cover of the May number is fine. But you should have told, somewhere in that number, that this was a good specimen of foulbrood comb."

This shows how easily some beekeepers may mistake a comb of perfectly healthy brood for foulbrood. The

cover of the May number was selected because it shows a sheet of transferred combs with almost perfect joints, although one may see the irregularities left by the suture, but without drone cells. One may see also some of all the things to be found in a healthy hive, honey at the top, then eggs and brood in all stages, and in the lower left hand corner a patch of pollen. But there is no foul brood there. Don't make any mistakes and don't take pollen packed in the cells for dead brood.

Putting On Supers

Keep plenty of supers on your colonies during the honey crop, for the bees scatter the fresh gathered honey as much as they can in order to ripen it. Whether it is by ventilation that the bees ripen honey or whether it is as per Dr. Brunnich's assertions, that they keep transferring it and separating the watery portions, within their honey sacs, in either case, it is well to have plenty of room. But there is such a thing as overdoing the number of supers. Then the honey is not sealed properly, and if the summer is cool, the bees may not breed as much as they would if the space was sufficiently restricted. This matter requires a great deal of judgment on the part of the apiarist, and we cannot give this to him by any instructions.

A Vacation In May

Going on a vacation with wife, in May. Is that possible or appropriate for an old beekeeper? Isn't the month of May one of the busiest? Yes, of course, and yet we are going to drop everything and go visit friends.

No, not beekeepers, not bee conventions. Nothing of the kind. Just forget all about bees and bee journals for two weeks.

Then we can make our plans for the celebration of our golden wedding anniversary, which, as we will need to inform you, is to happen on November 1st. Fifty years of married life! Seven children; three daughters-in-law; two sons-in-law, eleven grandchildren.

As to our leaving the editor's desk for a few days, don't worry, reader. Others can take my place. Maurice Dadant's Monthly Bulletin, as Secretary of the Illinois State Association, the May number, shows that he can step into my shoes whenever it becomes necessary. I believe he could do the American Bee Journal's editorial work fully as well as I do.

Hubam Melilot Not Always An Annual

The Bulletin of the Societe Romande of Switzerland writes a short mention of Hubam and states that, with them, it turns out to be biennial. The same criticism is published by "L'Abeille" of Huy, Belgium, in which Mr. Stassart writes:

"Mr. Massart and I have tried this plant; the seed germinated very irregularly; I had but two plants and Mr. Massart three. In his yard, one of the plants blossomed, but so late that the bees could not work upon it. In my yard, in 1923, it did not bloom. In 1924 my plants grew vigorously and bloomed just the same as the biennial. In 1924 I sowed a large area of it, but it will not bloom before 1925."

The above named magazine suggests that the Hubam may be annual in special circumstances and climate, but does not prove so in Belgium. More experiments are needed to establish it as a special annual plant. We must remember that it was found mixed with biennial melilot in our warm Alabama soil, and that may explain its special behavior.

The Spanish Bee Magazine

"La Colmena," the Spanish bee magazine, now published independently from the agricultural magazine with which it was formerly printed, gives, in its March number, a lengthy interview of its editor with Alfonso, King of Spain, in which the King evidently shows great interest in beekeeping. The photo of the King is also published, with his signature.

The same number of this Spanish magazine contains a very witty contribution, in which its author attempts to prove that it was not an apple, but a comb of honey, which Mother Eve presented to Adam, at the suggestion of the serpent. The writer uses the terms given in the Bible, to make his point: "Of every tree of the garden thou mayest freely eat: but of the tree of knowledge of good and evil, thou shalt not eat of it." The Spanish quotation is: algo que esta en el arbol (that which is in the tree). One of his arguments is that the serpent would not eat an apple, but would eat honey. We do not wish to be held accountable for this view, and throw the entire responsibility on its author, Senor Ignacio Calvo.

Pollination of the Pear

The "American Fruit Grower" for March contains an article from the well-known John H. Lovell, upon the above subject. It is of wonderful interest. Mr. Lovell explains how it was ascertained that the Bartlett pears are not good self-fertilizers. He writes:

"Most varieties of pear trees are largely or partly self-sterile, i. e., they remain barren unless pollinated with pollen from a different variety of pear. Even the self-fertile varieties in the long run appear to yield more and better fruit when cross pollinated."

As bees are directly efficient in cross pollination, it is evident that beekeepers are much interested in this matter. Mr. Lovell writes:

"At least one hive of bees in each quarter acre is necessary for the proper pollination of the flowers. I had under observation a medium-sized pear tree in full bloom for an hour and a quarter, but during this time saw no insects except honeybees, which were very numerous. A cluster of seven flowers received eight visits in a quarter of an hour, and two other adjacent clusters consisting of sixteen flowers received sixteen visits."

These matters are very important to beekeepers, whose bees are often accused of damage for which they are not responsible. It is another testimonial in favor of bees as connected with horticulture. The orchardist should remember these facts and do all he can to protect the bees and prevent them from being poisoned by sprays while they are rendering these services to him, in the fertilization of flowers.

A Question to the Readers of A. B. J.

At one of the meetings of the American Honey Producers' League, two or three years ago a historical committee was selected, of which I was made chairman. Lately, the present president of the League, Mr. Kindig, wrote me to ask me to prepare a historical sketch of the different national associations which have existed in the interest of beekeeping in the United States, up to the present time.

Not long ago, in compliance with this request, I made an effort to prepare such a sketch; but I find that, in order to make it interesting, it must detail the organizations in question and would then become quite a large book. Can we prepare such a work and make it pay its expense? I propounded that question to Mr. Kindig and now place it before the readers of this magazine.

A few years ago, at a meeting of beekeepers, where leading educators were present, I made the remark that the world-renowned work of Huber, "Nouvelles Observations," did not have a correct and complete edition in the English language, although four English editions of this work were published. Our friends suggested that I make a new translation, including every page of the original French edition. I did. But although this has been finished for over two years, we have not seen our way clear to publish it so as to not lose any money on it.

I don't want to make any profit on those books. The honor would be great enough; but I would not like to lose money on them. The readers of the American Bee Journal are now requested to give their opinion. If those works were published at \$3 a copy, would you buy them? Which of them would you prefer to read?



Stahmann's headquarters, a regular city right on his ranch, with garage, stores, homes and offices.

A Half Million Dollars From Bees

How the Sale of Honey Laid the Foundation for the Fortune of a Most Successful Beekeeper

By Frank C. Pellett.

WHEN one feels a little blue about the future of the bee-keeping industry, or questions the possibilities of honey production as a career, it does him good to pay a visit to some of the men who have really done big things with bees. We often hear it said that few men make anything worth while from honey production, but when you stop to think about it the proportion of success is probably as large as with any other line of food production. Only a few men make good in a big way in any line of effort.

Beekeeping is essentially a business of details, and many a man will succeed with as many bees as he can care for personally, who at the same time will be unable to direct the labor of others profitably.

W. J. Stahmann, of Clint, Texas, has probably made more money from bees than any other man in America. While Stahmann has made a lot of money aside from what the bees have produced, still he credits the bees with furnishing the capital necessary to engage in the other enterprises. By investing the money received from the sale of honey in other productive enterprises which have been carried on along with his honey production, he has been able to accumulate a comfortable fortune within a comparatively few years.

Our Texas friend is no upstart at the business. He has been through all the vicissitudes common to bee-keeping. For years he had all the ups and downs and for a long period it must have seemed like mostly downs. He made his start nearly forty years ago, when beekeeping was still in the experimental stage, at the time when the pioneers were still discussing things which are now accepted as settled facts. Langstroth and Quinby, A. I. Root and Charles Dadant were at the height of their careers and the advocates of the contraction idea of smaller and

smaller hives seemed to be getting the better of the argument. Instead of following either extreme, Stahmann took a middle ground. He adopted eleven Langstroth frames for his hive and has continued to

of his unusual career. The next time I meet a man who is ready to give up the bees because he has one or two bad seasons I propose to tell him the story of W. J. Stahmann, of Clint, Texas; the story of a man who met more hard luck than most anyone I know. Every time fate dealt him a blow he came up smiling and tried again, and although he was knocked out by circumstances beyond his control, several times in succession, still he kept right on going, until fortune began to smile on him, and apparently began to try to make up in big measure for all the misfortune which he had suffered.

There is nothing particularly striking about his system of management. He has simply succeeded because he has plenty of colonies of bees to gather a big crop when there is honey to gather, and has kept them in shape to take care of the honey when the flow comes. Too many men build up their bees "on the honeyflow, instead of for the honeyflow." If one has enough bees in the proper condition, fortune will smile on him when a big honeyflow does come.

Back in the old days Stahmann began his beekeeping in the usual way in the state of Minnesota, in a location where there was both basswood and clover in abundance within reach. He did not have so many bees then, and the picture which he still retains shows a nicely arranged apiary with all hives painted and everything in show order. He had several good seasons and was getting nicely established when he met his first disaster. He had taken off his crop and stored it in the honey house, when fire destroyed the building, including his honey, his supers and such equipment as was not on the hives. Following this misfortune, he had five seasons of successive failure, and beekeeping looked anything but promising as a source of livelihood.

A man can stand one or two fail-



W. J. Stahmann beside a clump of arrowwood or cachiilla, an important honey plant in that region.

use it to this day. His hive was much larger than advocated by the Heddon and Hutchinson group, while smaller than that used by Quinby and the senior Dadant.

I spent a very inspiring day with Mr. Stahmann, going from one to another of his farms and from apiary to apiary, where I learned the story

ures, but when they continue long enough he finds it necessary to look about for some means of paying his grocery bills. Stahmann accordingly established a little blacksmith shop and wagon works such as were common in those days. All went well with this enterprise for a time, when, without warning, the boiler exploded and blew up the whole outfit, wrecking the building entirely and throwing his house nearby, off its foundation.

Never did he give up his bees, but like a true optimist continued to look forward to the time when bumper crops should come again, as come they did. Next we find him entering a period of serious illness, when he was long confined to the hospital and given up to die. After he had recovered and had established his bees in Wisconsin and paid for a farm with their help, and put money in the bank, there was a short period of serenity before his plans were once more upset. Mrs. Stahmann was stricken with illness and he was advised that a change of climate would be necessary to save her life.

About that time, much was written about the possibilities of keeping bees on barges on the Mississippi River and getting several crops by moving with the seasons. Under the necessity of making a change and with no very definite destination in view, Stahmann bought a cabin boat and a big barge and took his bees and his family to the river. They spent the first summer on the St. Croix River and were fortunate enough to select good locations for placing the bees. A crop of 45,000 pounds was harvested and Mrs. Stahmann began to improve in health. After the honey was sold they started down the Mississippi. When they came to the mouth of the White River they turned aside and steamed up that stream. Two months were necessary to make the journey, and the adventures which they met on the way would fill a book. The family will long remember that journey, although it is an experience that they would hardly care to repeat. The next season was spent with the bees along the White River in much the same way that the first summer had been spent on the St. Croix. The honey crop gathered in Arkansas was much smaller than that gathered in the north and of very poor quality. Expenses were extremely high and the bank account was rapidly diminishing. By this time it was apparent that the river project could not be made a financial success and Stahmann started out by rail to select a location where favorable climatic conditions would be combined with a good beekeeping location.

When finally he was settled at Clint, in the Rio Grande Valley, near El Paso, he had spent his cash reserve of several thousand dollars, besides mortgaging the little farm back home for several thousand more. The first man from whom he tried to buy land advised him not to buy unless he could pay cash, saying that it would be impossible to make the land pay for itself. Nevertheless,

Stahmann bought sixty acres, going in debt until the bees paid for it. He increased the four hundred colonies which he had left when he reached Clint as rapidly as possible and invested the money received from the sale of his honey, in additional land. Then he began to pick up fast. His neighbors credit much of his success to the fact that he owned land on which was a large acreage of alfalfa which he could cut when it least interfered with the honeyflow. Sometimes it was cut for seed and some-

soon after his arrival, he bought a tract of 800 acres on time. He built six miles of irrigation ditch to carry the water to this land and made \$100 per acre from the alfalfa which he planted. He did not put all his eggs in one basket, however, but remembered that some prices go up while others go down. He aimed to have enough acreage so that the crop that happened to be high left him a liberal profit after deducting the deficit for the crop which had to be sold at a loss.

The enterprise has grown rapidly. Last year he employed 200 men and had 65 acres in onions and 900 acres in cotton, to say nothing of his other crops. He lately purchased another large tract of land and has a big force of men getting it ready for next season. This season he expects to employ 500 men and add 200 acres or so of melons to the other crops and additional hundreds of acres of cotton and alfalfa. His son, Dean, who seems to be as capable as he, as an organizer, is taking direct charge of the improvement of the new tract. They now own something like 4500 acres of land under irrigation, besides about 3000 more of dry land which is of use only for grazing.

It seems incredible that the bees could have financed such a vast enterprise; yet Mr. Stahmann insists that they have. While the sale of other crops is now many times greater than the amount received from honey, it was the bees which furnished the initial capital and the money to pay running expenses while the work was getting under way.

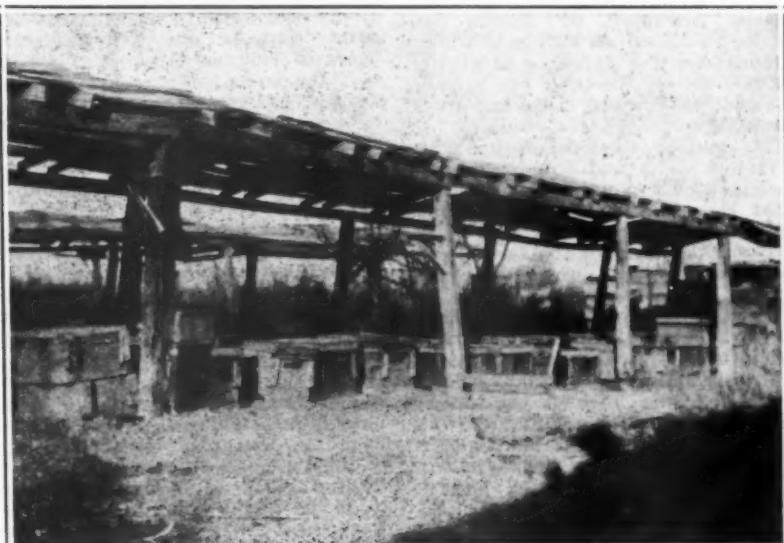
The most interesting thing to me is the fact that Stahmann still thinks of the bees as the thing among all his enterprises most worthy of his personal attention. At the time of my visit, in January, he was preparing supplies for the purpose of increasing the 1400 colonies which he now has, to something like 3000. He has lately selected some new locations in the San Luis Valley, in Colo-



A tar paper winter case, designed by Stahmann for use in Colorado.

times for hay, but always the cutting was timed to allow as much bee pasture as possible.

Although it was only fourteen years ago that Stahmann arrived in Clint, I am reliably informed that he has accumulated a half million dollars during that period, much of it during the past four years of depression, when many of his neighbors gave up and quit. During the fourteen years, he has sold an average of ten thousand dollars worth of honey each year. The money received for the honey was invested in land and the land planted in crops which brought in additional revenue. Very



All of Stahmann's apiaries are shaded from the sun by rough board sheds.

rado, and will go there to spend his own time with the bees, leaving the rest of his interests in the hands of his capable son. Although he has reached the time of life when most men like to think of letting up, he seems to think that the care of 3000 colonies of bees will not be a job too strenuous for a man of his years. One reason he gives for the Colorado move is that there is so much else to look after at home that he is likely to neglect the bees unless he takes them beyond reach of the cotton and melons, onions, etc.

Since coming to Texas, Stahmann has worked his bees in the most practical manner and has eliminated every motion not likely to count in actual honey at the end of the season. He is what would be called a rough and ready beekeeper. He no longer

has time to keep all the hives painted and the apiary in show order, as he did at the beginning. He regards the beehive as simply a tool in the hands of the beekeeper and values it only for the returns which it will give for the labor expended. He keeps a cost account with every branch of his business and knows exactly what it costs to produce a pound of honey, a bushel of onions a bale of cotton or a ton of alfalfa. The only way to reduce the cost of production is to cut out the non-essentials. With 200 men employed, it takes good management to make a profit on their labor, under present conditions.

To me there is a real inspiration in this man's story. It proves that the man who is big enough is master of circumstances, and W. J. Stahmann is that kind of a man.

knowledge of the two diseases has come a modification of treatment.

Although European foulbrood is troublesome in some localities, practically no one now considers it necessary to destroy the combs in a hive infected with this disease, or even subject them to some sterilizing process. This, however, is still necessary when American foulbrood is the disease to be controlled.

Because of the highly infectious nature of American foulbrood, no beekeeper who is at all careful would dare give to or take away from any colony, in carrying on the ordinary manipulations of the apiary, anything which might become infected or carry infection, when dead larvae are present in the colony which he is not positive was not dead of American foulbrood.

To express it in another way, what is needed is to know definitely, within a very few minutes, whether or not American foulbrood is present in the colony. This is now possible when a suitable microscope can be had and the proper process followed.

The present day beekeeper is not so much concerned about European foulbrood, because its control by the use of modern beekeeping methods and disease resistant stock, whatever the race might be, is a comparatively simple matter. Further, it seems to be contagious to a rather limited degree, so that transferring material from or to a colony having European foulbrood is accompanied with a comparatively small amount of risk.

The writer wishes to have, from New Jersey beekeepers, a number of samples of diseased larvae further to test the diagnosis by the aid of the microscope. Place the dead larvae or scales on a clean piece of paper, fold it and enclose in an envelope, with a letter, and diagnosis will be made.

Pennington, New Jersey.

American Honey Producers' League

Committee Appointments

President B. F. Kindig of the American Honey Producers' League announced the appointment of Clifford F. Muth, of the Fred W. Muth Company Cincinnati, Ohio, as chairman of the local arrangements committee in charge of the League convention in that city next January. The Metropole Hotel has been selected as headquarters. This is a new hotel, opened to the public last month, and has the finest facilities obtainable, it is said.

Mr. J. E. Eckert, State College Station, Raleigh, N. C., is appointed as chairman of the schedule committee for the eastern section of the country, including all states east of Ohio, Kentucky, Tennessee, and also the southern states of Florida, Georgia, Alabama, Mississippi and Louisiana.

Mr. C. L. Corkins, State Entomologist, Laramie, Wyoming, has accepted a like position for all the western states and North and South Dakota and Nebraska.

Microscopical Diagnosis of Bee Diseases

By Elmer G. Carr.

FOR some time the writer has felt the need for a method of determining the cause of death of certain bee larvae where the gross symptoms are insufficient to make a positive diagnosis.

The Bee Culture laboratory at Washington has always been willing to make microscopical diagnosis of samples of dead brood submitted to them. This, however, has caused a delay, and a method of field diagnosis has been needed, or at least some method whereby it was needless to mail a sample of comb which travels at second-class speed by post and also makes a bulky package.

Last spring, Prof. Kelty, of Michigan, in his monthly news letter for beekeepers, stated that he would accept, for microscopical diagnosis, dead larvae which had been smeared on a clean piece of paper and forwarded in an envelope. This seemed to the writer to be a very desirable arrangement.

Later in the season Provincial Apiarist Sheppard, of British Columbia, published an article in which he mentioned the purchase of a suitable microscope for their bee inspector to use on samples where the gross examination proved inconclusive.

This matter was taken up with Professors Kelty and Sheppard, each of whom kindly explained his method. While these differed slightly, one using carbolic fuchsin and the other nigrosin as a stain for the smears, on trial both processes proved satisfactory.

When the writer, in collaboration with Mr. Hutson, of the New Jersey Agricultural Experiment Station, made tests, only old dried larvae dead of disease could be had. However, with this material, no difficulty was experienced in detecting the spores of *Bacillus larvae* also in connection with them the giant whips as described by White. [White, G. F., "American Foulbrood," U. S. D. A. Bul., 809, 1920.]

In old material where the gross

symptoms indicated European foulbrood as the cause of death of the larvae, the microscopical examination showed *Bacillus alvei* and *Bacillus pluton*.

Since the writer made upwards of thirty tests, with satisfactory results in each case, it would appear that we now have a method which will be an extremely valuable aid in bee disease diagnosis where the gross symptoms are not distinct.

These findings have been checked against slides which were prepared in the Bee Culture laboratory and kindly furnished by Dr. Sturtevant.

Beekeepers with little experience in differentiating the two brood diseases, American foulbrood and European foulbrood, cannot fully appreciate the difficulty sometimes experienced where but a few dead larvae are visible in the hive, say four or five at most. There are cases where no gross symptom is sufficiently marked to make a positive diagnosis safe. It might be well to mention at this point that, in the writer's twelve years of bee inspection in New Jersey, the so-called ropiness of larvae dead of American foulbrood has been of no use whatever in identifying this disease. In this time over thirty-five thousand colonies of bees have been examined and over seventeen hundred have been diagnosed as infected with American foulbrood, yet in not more than ten cases has any decided ropiness appeared when the usual test was applied. Therefore, under New Jersey conditions, the ropiness test has no practical value.

It may not appear so very important to some persons whether it is positively known whether a colony of bees is infected with American foulbrood or European foulbrood, that so long as it is diseased the form of disease is not important. At one time this would have been considered true, since the recommended treatment for both diseases was nearly the same. However, with better

The Biography of the Bee Smoker

By C. P. Dadant.

OUR young beekeepers, who find in every apiary good bee smokers, bee veils and other paraphernalia, have little idea of the hardships of bee handling before the invention of those helps. The bee veil was a very heavy wrap, around head and neck, with a piece of wire screen or sometimes a small piece of glass, for vision.

As I was already a beekeeper when the modern implements were invented, I remember well how troublesome it was to smoke bees, so as to compel them to be peaceable, with the use of a stick of dry rotten wood, or of punk, lighted on the end. We used to go punk hunting, splitting what we found into long, narrow strips and putting these in the honey house to dry, for neither wet punk nor wet rotten wood will burn. When we found the right kind, we preserved it carefully for use.

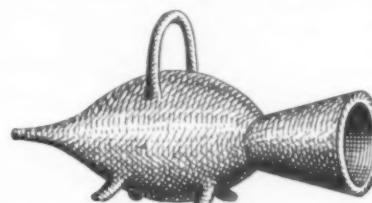
Inventions of bee smokers, however, date back a great many years. One of the most ingenious, which I have seen described, was that of Della Rocca, used in the Island of Syra, an earthen vessel shaped like a turtle, and which he described in his book, as follows:

"A vessel of baked clay which the inhabitants of Syra use to smoke their hives in beekeeping. The potters of Paris call this a 'turtle', but it is called also 'smoker' and 'heater'. One inserts hot coals in the large opening (a), then some dry horse or cow dung. If this dung is dry enough, it may be lighted without the use of coals, and as fast as it is consumed one puts in fresh dung. On the opposite end (b) is a small hole which serves to blow the smoke so as to force it out of the big opening at (a). There are, at the bottom of the turtle, several little holes which furnish the needed air and allow the ashes to fall out. There is a handle at the top to permit of the carrying about of the implement, and four legs to support it. This instrument is better than anything else in use, to smoke bees, as it does not endanger their

life, many times bees and even queens having been known to fall into an open fire vessel."

Does not that fine description give you a desire to have one of those "turtles"? The idea of blowing cow dung smoke out of that little hole is very enticing.

But it appears that this smoker was not the first made by primitive



The turtle smoker described by Della Rocca.

people to smoke bees. Mr. Bernard, of Algiers, an old friend of ours, treasurer of the Algerian Beekeepers' Association, and a man of great experience in North Africa, writes me:

"The Algerian natives smoke their bees with what they call a 'fakroun' (turtle) because of the great resemblance of the instrument with the shell of a turtle. The 'fakroun', supplied with a handle, has a large opening through which the combustible is supplied, usually dry cow dung. In the forward part of the instrument a number of little holes are provided, through which the smoke escapes when air is forced into the large opening. The dimensions of this pot vary between 6 and 10 inches. (Figure 1.)

"I have been very much interested in recognizing a similar instrument in the engraving of a pottery vessel found with Gallo-Roman pottery, in excavations made at Argentat, a small city of France. This pot was labeled 'perfume burner' of druidic times, in the collection of the Count of Noailles, where it is still kept."

The drawing here given (Fig. 2) is described as follows, in the notice

published upon the Gallo-Roman villa, by E. Bombal, in 1897:

"The perfume burner is of red clay, much coarser in grain and of deeper pink than Samos clay. The implement is composed of two parts joined together, a pan-shaped dish two inches deep and a semi-spherical cap two and a quarter inches deep. It is of elongated shape; its diameter is five and a quarter inches in its longest part. The upper and lower parts of the handle are soldered together, leaving only a small opening in the fold, for the fingers. The cap, or cover, is ornamented with little strips applied in irregular protuberances, which give the implement a rough appearance. A round hole, an inch and a half in diameter, is made in the cap at the point of junction with the handles, for the putting in of odiferous substances and of hot coals. The cap is also provided with about one hundred holes of irregular sizes, which were evidently made with a conical punch, used more or less deeply.

"The implement was manufactured without skill. Its weight is about two and a half pounds. It was coated with some sort of varnish and must have been used a long time, for it is blackened and covered with the residues of combustion."

"The author of this description wonders at the possible usage of this implement. He considers it as unfit for funereal service or for use as a warming-pan. Had he known of the use of the Algerian 'turtle', he might have concluded that this 'perfume burner' was just a bee smoker. It seems to have been used at the same time as the Gallo-Roman lamps with which it was discovered."

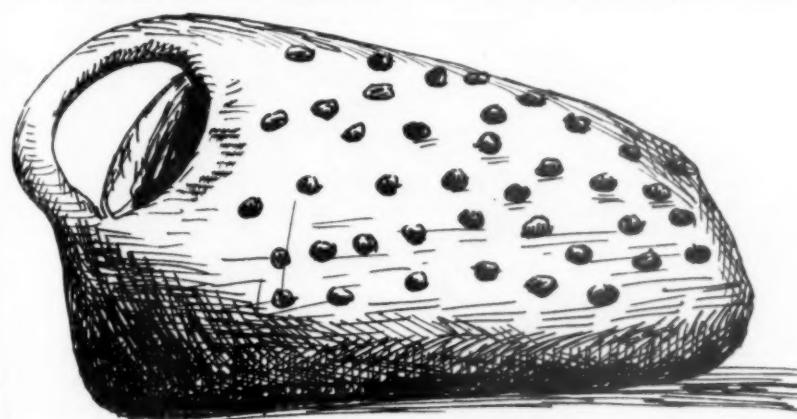
Our hearty thanks are extended to Mr. Bernard for this interesting description.

Quinby, who later invented the first convenient bellows smoker, originally gave the following directions for making a bee smoker, in his edition of the "Mysteries", in 1866:

"Get a tin tube, five-eighths of an inch in diameter, five or six inches in length, make stoppers of wood to fit each end, two and a half or three inches long, tapered at the ends. With a nail gimlet, make a hole through them lengthwise; when put together it should be about ten inches long. On one end make a notch, so that it may be held with the teeth, which is the most convenient way, as you will often want to use both hands. When ready to operate, fill the tube with tobacco, ignite it, and put in the stoppers; by blowing through it you keep the tobacco burning, while the smoke issues at the other end."

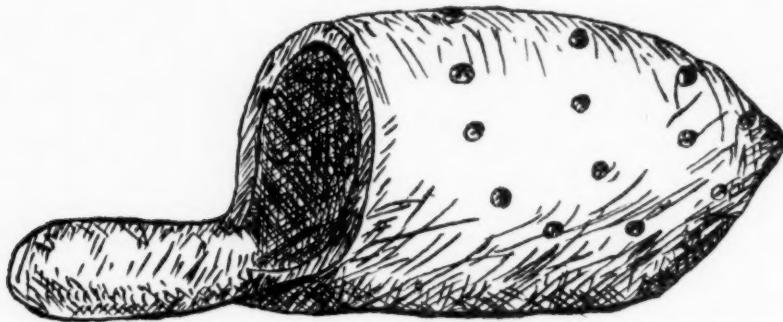
This was a little better than blowing on cow dung.

Tobacco users had, long before, used a large pipe. Even now beekeepers' pipes are offered for sale



A typical Fakroun, reduced to about one-third its real size.

in European catalogs of beekeepers' implements. But the man who did not care to use tobacco, and for whom the blowing of cow dung smoke through an earthen hole was not an agreeable occupation, did as we did, and probably for centuries previous to ourselves, had used the punk method.



A Fakroun in the collection of the Algerian Beekeepers' Association. This primitive smoker is native to Algeria.

By and by, men devised a bellows smoker. Hamet, in his "Cours D'Apiculture," gave the description of a "fumigator" with bellows. But the implement was coarse, heavy, and both hands were needed to run it. However, he could cover a hive of bees with smoke to such an extent that you could not see the hive for the smoke. It was a success in that way and could surely subdue the crossest colony of bees.

It was not until 1873 that Mr. Quinby invented the bellows smoker, which could be handled with one hand and which would draw, like a chimney flue, when set upright. But the barrel of his smoker was too small to contain a sufficient amount of fuel; the tube connecting the bellows with the firebox permitted hot coals to fall into the bellows, and holes were soon burnt in the leather of the latter. An enterprising beekeeper came to us with a sample smoker, trying to sell us one; but after a half hour of trial I went back to the stick of smoking punk, even though I had often blown upon this punk until I was very dizzy.

A little later, Bingham devised the "direct draft" bee smoker. It was simply a better built Quinby smoker, with the bellows entirely disconnected from the firebox; with just the two holes of these parts opposite each other. In this way the blow of the bellows entered the firebox with a little less force, but no hot coals fell from the one into the other. To make up for the greater amount of air needed, the holes were made larger than in the Quinby. So there was less need of pressure, and the instrument worked with much less effort. We tried one and adopted it immediately.

Strange to say, Quinby and Bingham, who had really helped each other to make a serviceable implement, considered each other as having encroached upon one another's rights. Quinby had not taken any patent; so Bingham seized his pat-

tern without any reward; but when Quinby made his tube between the two parts with an opening at the bottom, so the hot coals might fall out, Bingham threatened him with a suit for infringement. I can still remember how indignant our good friend L. C. Root, Quinby's son-in-law, was in describing to me the visit

Bees Followed Program

This is the way Charley told the story at our picnic:

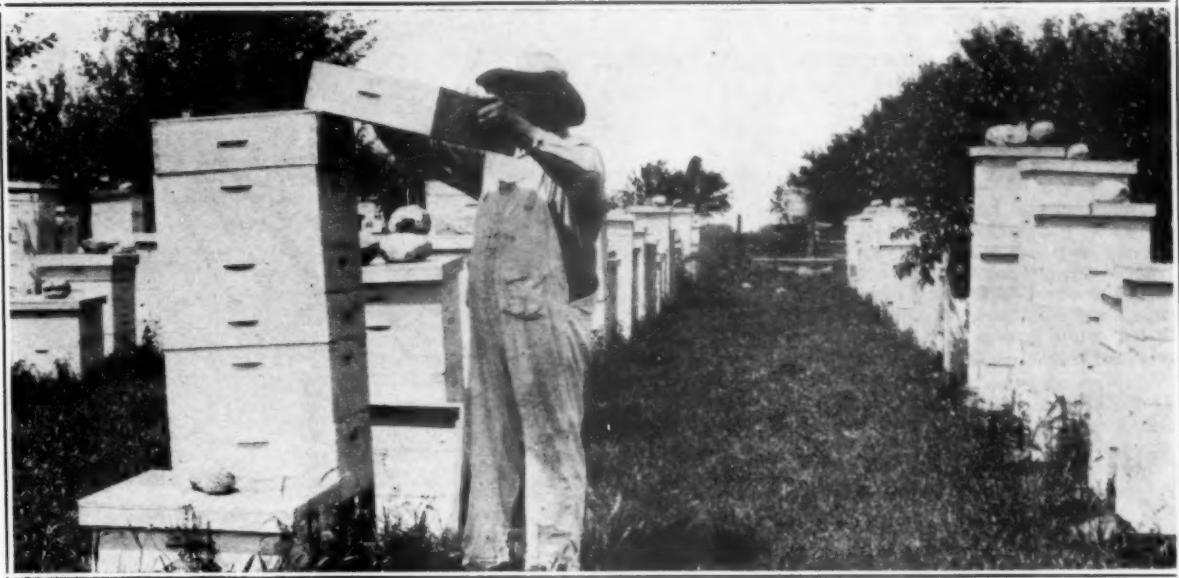
Everybody knows that Leta is bewitching, and some of us know that she is bee-witched. How she did long to add to her one hive of bees! I was hoeing among my young apple trees at the foot of the bluff while Leta and another woman were wandering through the thicket two hundred feet above. Came a vibrant roar in a contralto that was Leta's, and I was reminded that an unidentified beast of frightful aspect had recently been seen by many in the neighborhood. Clinging valiantly to the hoe, I rapidly climbed the bluff. Leta was saying a lot of things, but I could not understand a word. I could hear her tearing through the brush. As she had the advantage of both grade and weight, she met me more than half way. Even then, though she continued to orate, I could not learn what was the danger. But finally I did manage to hear, "Bees — bees — swarm — big — big — one — go get gunnysack — come up — see if still there!" I came up. Wife seized one end of the hoehandle, I held the other, and pulled — and pulled. She is a dear — but no fairy. She was wellnigh exhausted, and I was not very fresh, and the bluff was steep and the weather hot. But she never stopped talking: "Such a lot of them — beauties — weighting the tree down — 'fraid they'll be gone — do hurry!"

Now, I like bees well enough, but they don't always reciprocate, and I have a normal degree of caution. But I had to admit that the enormous cluster of velvet-gold was enough to excuse a reasonable cupidity. Down the bluff, two hundred feet, to get the bag; up the bluff, two hundred feet, and the day getting hotter all the way. The bees offered not the slightest objection as we slipped the bag around them. Then we cut off the twig and tied the bag. The other woman didn't meddle with our family affairs. Arrived at home, Leta deliberately shook those bees out of the bag in front of a hive, and — you may believe it or not — those bees formed into procession and marched into that hive as though they were following a printed program.

C. J. Pickert, Minn.



Pottery found at Argentat (Corrèze), with Gallo-Roman lamps. Is it an early smoker?



As honey comes in supers go up to keep pace with the flow and the ability of the colony to harvest.

How Supers Measure the Crop

By K. Hawkins.

"I AM of the opinion that about fifty per cent of the swarming in this part of the country is due to an inadequate number of supers per colony," says T. W. Burleson, who has several hundred colonies of bees in north Texas. "I would stress to every producer of honey: Increase your supers per colony before you increase your number of colonies."

No more sound and sensible advice has ever been offered. The only successful way to control swarming and get a maximum crop of honey is to handle the bees so that the storing instinct is always dominant and the swarming instinct never gets first place in the reactions of the bees to their conditions. How to accomplish this has been outlined in two previous articles, but all the effort is wasted if the beekeeper neglects to super his bees properly at the beginning of and during the honeyflow.

"Plenty of super room is a feature of my operations which I would not want underestimated in any resume of my operations," says Porter C. Ward, one of Kentucky's leading honey producers. "I feel that a great deal of honey may be lost and lots of damage done through crowded colonies if they do not have ample storing room during and just before the heaviest flows of honey." He also advises that, in addition to the two-body brood chamber, where eight or ten-frame equipment is used, the beekeeper have no less than three full-depth supers per colony in the production of extracted honey.

"Supering is the most important feature of swarm control," says J. E. Crane, one of Vermont's most successful producers of section comb

honey. "Bees cannot be operated in Vermont for comb honey with less than four supers per colony if the bees are to be given a fair chance to store honey and neither the queen nor workers be stinted for room."

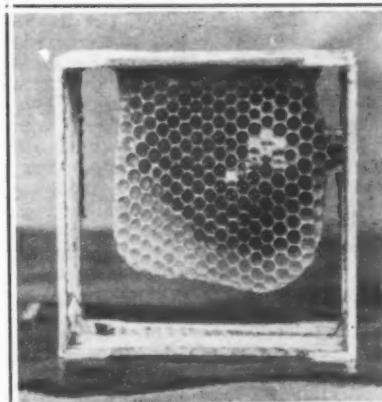
The proper supering of bees is so closely interwoven with successful methods of swarm control that it is

the most important phase of producing big crops of honey is keeping the storing instinct foremost in the reactions of the bees. To do this it is necessary, at least, to prevent a crowded condition of young bees in the brood chamber.

Supering for Comb Honey.

When the colony has been brought up to the beginning of the honey-flow, filling a two-story, eight or ten-frame standard hive with brood, and one intends to produce section comb honey, the following method of supering is often successful: The bees are reduced to one hive body containing the queen and the frames with the most capped brood. Nearly all of the bees are shaken out of the second hive body, which may then be removed to a new stand for increase or used on colonies run for extracted honey. In place of the body of brood and bees that has been removed, at least two section comb honey supers should be given to each of the strong colonies.

Do not attempt to operate colonies for section comb honey unless they are the strongest in the yard. Usually, in about seven days, the lower comb honey super may be placed above, which spreads out the young bees that are building combs, and, by getting them farther away from the brood chamber, has a tendency to reduce swarming. The colonies must be watched closely, as, in any fair honeyflow, a third super may have to be given before seven days are up. This can be judged by the amount of work done in the two supers previously given, and depends also upon the condition of honey plants and upon the weather.



Sections like this come from too abundant super room at the end of the flow.

difficult to mark the point where supering is strictly an operation for producing honey. It has been said that "any plan which gives ample egg-laying room for the queen at all times, which provides adequate storage room for honey elsewhere than in the brood chamber, and FORCES THE YOUNG BEES TO VISIT ALL PARTS OF THE HIVE, effectively prevents swarming in most cases." This is both a swarm control measure and a honey-producing measure, and

The third super may be given next to the brood chamber, and many successful comb honey producers follow the plan of always giving each empty super next to the brood chamber. If the honeyflow continues with intensity and the bees are storing rapidly, it is often a good policy to take the super next to the brood chamber and put it on top of the others each time a new comb honey super is added. The manipulation of the comb honey supers in this way will do more than anything else that can be done to control swarming, which is always more difficult in the production of comb honey as compared to extracted honey.

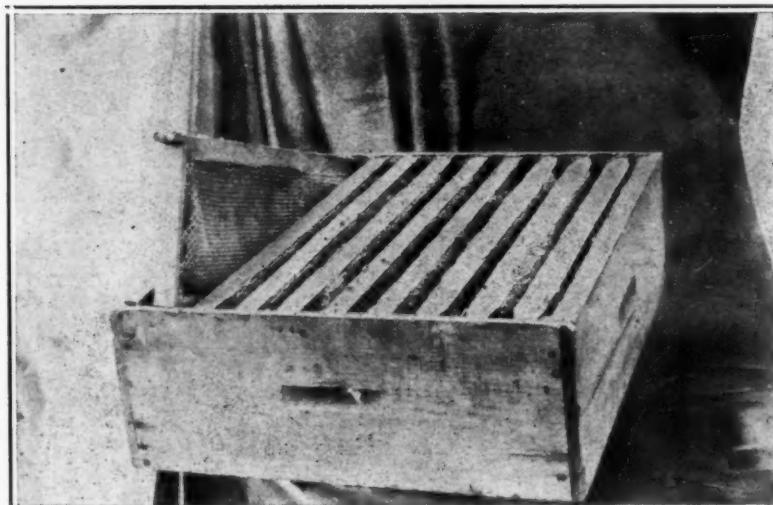
Full supers may be taken off as soon as the sections are capped over, but care should be taken to see that these supers are left on the hives an ample time to ripen the honey thoroughly. Leaving supers on the hive too long, on the other hand, will result in the cappings being darkened by travel strain and the honey thus rendered worth a lower price. You must learn a happy medium.

Decline in Section Honey

Many large producers of section comb honey turned to the production of extracted honey because of the necessary agitation carried on during the war, when extracted honey was needed as a sugar substitute. Many of these men have not again begun the production of section honey and there has been a serious loss to the industry as a result. There is no question, in the minds of those who market honey in quantities, that comb honey is a leader for the sale of extracted honey and that there are thousands of persons in the country who will buy only comb honey. The trend of the markets the last few years indicated to some that this decrease in the production of comb honey is resulting in more resistance to the sales of extracted honey and consequently the use of less honey altogether.

Recently one of the foremost authorities on beekeeping in the United States, in amplifying the general statement outlined in the preceding paragraph, said he considered the most serious loss to the industry from the decrease in section comb honey production to be the decrease in the number of good beekeepers. According to him, it is a generally accepted fact, in regions where comb honey is produced in quantities, that the best beekeepers, discouraged perhaps by marketing conditions, have not gone back to comb honey production. As a result, he believes, the coming younger generation of beekeepers are not as careful and thorough as those who came up to their prime during the comb honey era five years past.

Another authority believes that the drop in comb honey production is simply a swing of the industrial pendulum, that the production of section comb honey may decrease still further before the pendulum begins to swing back the other way, and he expresses the sincere hope that an increased production of section comb



Well drawn super combs are worth their weight in honey at the time of the flow.

honey will come about again before these losses to the industry and hindrances to the sale of honey have become more serious.

Supering for Extracted Honey

In the production of extracted honey, supering is somewhat more simple. When the colony has been brought up to the beginning of the honeyflow, filling two standard brood chambers with brood, swarming is usually controlled by a modification of several systems, which give the room necessary for egg laying, for the spreading of nectar, and the drawing up of young bees out of the crowded brood chamber.

Most extracted honey producers use the queen excluder, whereas most comb honey producers do not. When supering becomes necessary in extracted honey production, at the beginning of the honeyflow, the queen may be confined to the lower body on the frames containing the most capped brood, with an excluder next above, then one or more supers containing empty extracting combs, and the body of brood and bees above all.

Usually this method of handling, with the addition of more extracting supers as needed next to the excluder, effectively controls swarming and provides adequate surplus room. Some beekeepers follow the plan of destroying queen cells that may be built in the upper body, doing this within seven days after the colony is split up, and others examine the lower brood chamber and take additional swarm control measures during the honeyflow, depending upon the locality and the intensity of the flow.

Swarming can be controlled not only with less labor, but with more care, by proper supering in the production of extracted honey. Probably the principal reason for this is that, in the production of section comb honey, the sections contain full sheets of foundation, whereas, in the production of extracted honey, empty extracting combs are almost always available. The lack of comb space for the immediate storage of nectar in comb honey supers is the principal thing that makes swarm control diffi-

cult. Ample empty combs in extracted honey production, giving the bees plenty of room in which to store incoming nectar and to spread out and relieve congestion in the brood chamber, make swarming more easily controlled in extracted honey production. When the beekeeper has few or no empty combs in the production of extracted honey the swarm problem becomes more difficult. Where some combs are available, it is always advisable to give these in the first extracting supers that are put on and to force the drawing out of foundation as the season progresses. With the use of combs, the bees get started to storing above and keep their storing instinct dominant, and, when the foundation is put on later, the storing instinct is likely to continue dominant. Foundation may be very quickly drawn out and necessary space thus supplied for the temporary storage of nectar, but, at any time during the honeyflow, foundation is somewhat of a hindrance to swarm control, compared to full drawn combs. Although the proper time to have combs built from foundation is during the honeyflow, the mistake should not be made of forcing the working of this foundation too early in the flow.

Supering for Bulk Comb Honey

In the production of bulk comb honey, which is a leader in the Southwest, and in a minor way in some other localities, swarming may be a little more difficult to control than in extracted honey production. This is because bulk comb honey requires the cutting out of completed new combs of honey from the frames, as bulk comb honey is correctly packed with the majority of the space in the container filled with honeycomb and extracted honey merely poured over it to make a complete package. Where these combs are cut out, even if full sheets of foundation are put into the frames before they are given back to the bees, it reduces the amount of space available for the temporary storage of nectar and thus tends to bring about a more crowded condition in the hive and in the brood chamber. The manipulation of bees

for supering and for swarm control in the production of bulk comb honey may be identical in most localities with that followed for extracted honey.

Caution

In the production of section comb honey, the giving of too many supers may mean a serious loss, if the honey-flow shuts off unexpectedly and leaves a surplus of unfinished or uncapped sections which are unsalable except as bulk honey. When this happens some beekeepers uncap these sections and extract the honey from them, using them as "bait sections" in the first comb honey supers to be put on the following year.

While this custom is not to be discouraged, unless these sections are carefully handled and kept very clean and thoroughly emptied of honey, the honey that may be put into them the following season is likely to be unsalable, or at least not first grade. Leaving such sections with honey in them over winter, when it is almost sure to candy, even in some parts of the far South, cannot be too strongly condemned. No good beekeeper will put on the market a nicely filled and well capped-over section of honey in the center of which are cells of candied honey left over from the previous year. Strict grading rules will always throw these out.

The same caution applies to extracting supers. There is no use having a lot of partly capped extracting combs, containing green honey, left at the end of the season, as this honey, if extracted and mixed with the other, may be of sufficient volume to cause fermentation. Also, if these partly filled combs are not extracted and are carried over winter, they are most likely to candy.

Room for Nectar

The beekeeper who insists upon operating his bees, either for comb or extracted honey, with an insufficient number of supers simply shows that he does not understand one of the first principles of honey production. Nectar, as gathered from the flowers, is not honey, and, if extracted from the combs before it is capped over, will invariably ferment and be unsalable. This is because the proportion of water to sugar in the nectar does not make a sufficiently concentrated sugar solution to keep out the bacteria that cause fermenting. Examination of any colony of bees, during a honeyflow, will show that nectar is spread out over a wide space in the combs and that cells are never found completely filled at once with nectar. This nectar must be concentrated to eighty per cent sugar and twenty per cent water, as compared to about eighty per cent water and twenty per cent sugar, which are often the proportions in "green" incoming nectar.

Bees can only produce a maximum crop of honey when they have ample room for spreading out this incoming nectar to evaporate it with the greatest dispatch, so that the concentrated honey can be capped over in the smallest number of cells required. These emptied cells immediately become available for the additional nectar that continues to come in. This is the primary reason why an adequate number of supers is required for a maximum production. The average beekeeper who makes fun of the recommendation for more supers and calls it a scheme to sell equipment is satisfied with less honey than his bees would make for him if he treated them properly.

over the outside of the hive and still there would be no swarming. Again, we might have the hive crowded with bees and brood, still if there were no pollen or nectar coming in, or rather if this should be cut off entirely by a heavy frost, for instance, there would be no swarming unless the bees had already made preparations to do so.

I remember, in my early experience with bees, I had heard that if a colony were weak and had plenty of room they would not swarm. So when a colony wanted to swarm I killed their queen and made increase, putting one frame in each hive and seeing that they had one or two queen cells on each frame. Imagine my surprise to see a swarm issue from one of these nuclei! I remember I wondered just how weak a colony had to be to keep it from swarming. But there was one factor present I had not taken into account, and that was the fact that they had already made up their minds to swarm, before I divided them.

It has been stated that if bees have plenty of room they will not swarm. They will not swarm so often, and there will be a greater number that will not swarm if they have plenty of room, but there will be plenty of swarms even if abundance of room be given. Dame Nature seemed to take into account the fact that many swarms would find large, hollow trees and great caverns in the rocks, yet Nature proposed that they should increase. A striking example of this is given in the photo. Many beekeepers of California will remember the Short Course at Visalia. We wanted a photo of those two colonies, so the fire department was called out with their ladders and the photos taken.

These two colonies were under the eaves of the court house, thirty or forty feet high. They had the whole outdoors for room, and yet that did not prevent swarming. A party who knew the history of these bees told us that the colony to the left was the parent colony and that it cast a swarm which settled about twelve feet to the right and built the combs shown. I have learned that later these colonies dwindled, then the waxworms got into them and the whole mass dropped to the ground.

Some have said that when a colony gets strong it will swarm. Large numbers of bees in a hive is one of the elements that cause swarming, yet unless other conditions than a large number of bees are present, there will be no swarming. The photo shows a colony in a two-story hive which probably contains 150,000 bees, and yet this particular colony, as well as many like it, never swarmed unless the other features that cause swarming were present. As an experiment, a colony was built up to about 200,000 bees by giving brood from other colonies. This colony was permitted to have all the factors that go to produce swarming present, to see, if it were forced to swarm, whether it would build queen cells larger than when the swarming impulse was not present. This colony

Why Bees Swarm

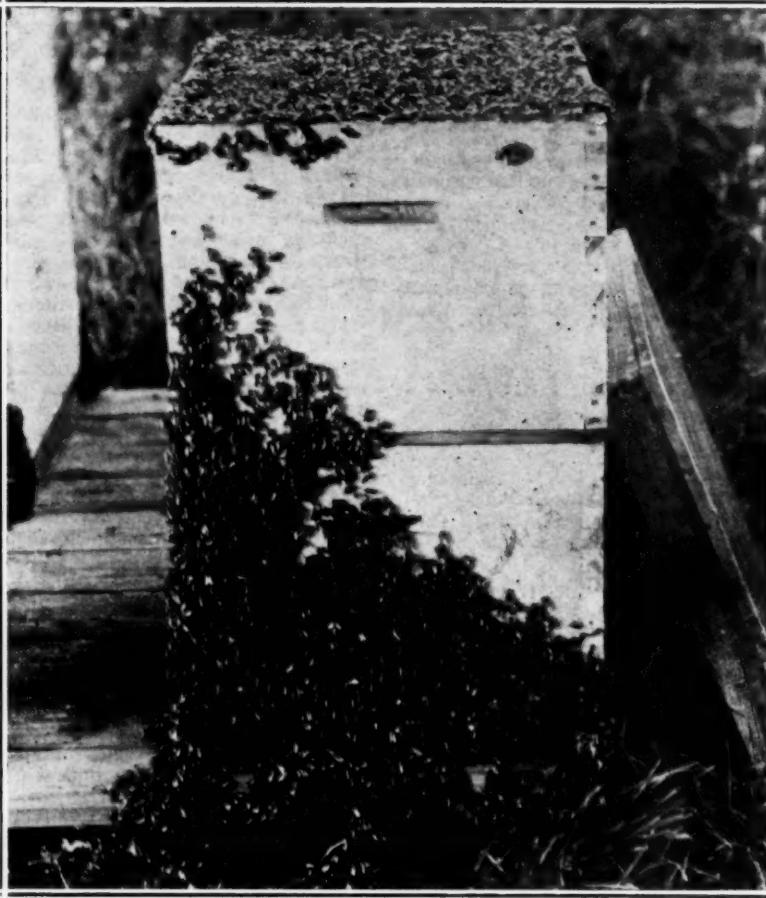
By Jay Smith.

WOULD not it be interesting if we could look away, way back and see the first swarm of bees that ever issued? When that was, away back in the dim past, we can only wonder. Crude drawings have been found on the walls of caves, made by the cave man, long before our written history begins, showing the cave man trying to "rob" the bees of their hard-earned sweets, showing it takes more than ten thousand years to change human nature. Mighty sorry the cave man did not write a bee book and leave for us. No doubt the cave man ten or maybe fifty thousand years ago looked with wonder as the bees swarmed and the question, "What makes them swarm?" came to him.

According to the Geographic Magazine, honey has been found in sealed jars in the tombs in Egypt, showing that the Egyptians liked honey. After three thousand years the honey was still good. And we may conclude that as the Egyptians watched their bees they asked this question: "What makes them swarm?" So

this question has come down to us and is still being asked. Beekeepers have been looking for the reason or the **one condition** under which bees swarm. It seems to us that the reason is simple. It is merely the peculiar manner that the bees have in carrying out the Divine injunction, "Increase and multiply and replenish the earth." However, there are certain conditions present when this swarming takes place, and if we would prevent swarming we must see that these conditions or factors are not present in the colony at the same time. There are several conditions that must be present before swarming takes place. There is no **one reason**, but **several**. To the person who believes that there is only one reason, let it be said that there may be present any one of these conditions, and if the others are not present there will be no swarming.

Probably the greatest reason for swarming is the crowded condition of the brood nest. Yet we could take away most of the brood and crowd the bees till they clustered all



A cell building colony with bushels of bees. These colonies never seem to swarm.

cast a 25-pound swarm, and we estimated that not half of the bees went out with the swarm. The swarm was returned to the hive from which it came, cells removed and more room given, when the bees remained content in the hive and did not offer to swarm again.

Now what are the principal factors that cause swarming? I will give them in the order of their importance as I believe them to exist: A crowded condition of the brood nest; a large amount of brood in the combs; hive crowded with honey, fresh nectar and pollen, and a light stimulative flow of nectar from the fields; colony headed by an old queen.

If we wish to prevent swarming we must endeavor to have as small a number of the above named features present as possible. In comb honey production it is difficult to keep swarming within reasonable bounds. Years ago, when producing comb honey, I used to start the colony off in producing extracted honey, then when the flow was well on and the swarming period past, I raised the extracting super and placed comb honey supers underneath. This gave very good results. I also used extracting combs at the outside of the comb honey frames, which reduced swarming and caused the entire super to be finished at about the same time.

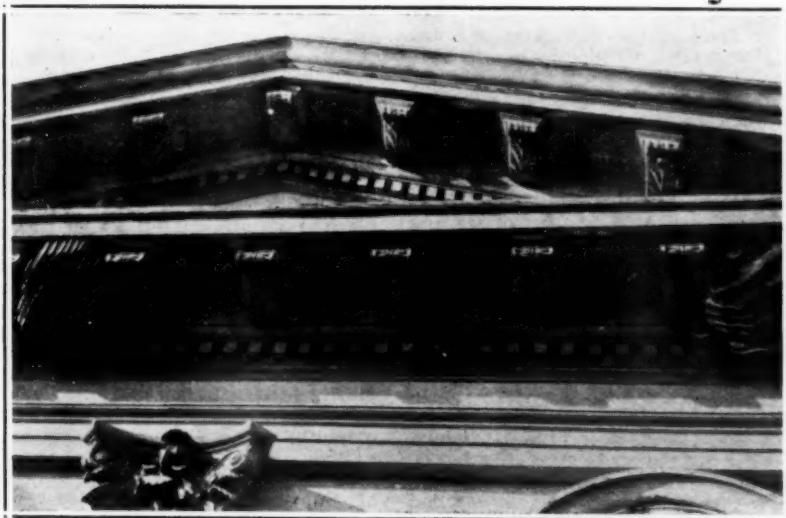
Then, if the colony had a young queen, there would be little swarming, but still swarming was not entirely prevented.

In the production of extracted honey, the control of swarming is much more simple. Many methods have been resorted to, to relieve the congested condition of the brood nest. One of the most common

methods is to place the queen with one frame of brood in a hive, filling out the remaining space with empty combs, then placing another hive body containing the remainder of the brood on top of the first hive with a queen excluder between the two hives. Several supers are placed on top of the excluder and under the top hive as the honeyflow comes on. This plan is reported as generally successful provided it is done before the bees have the swarming notion. If they have already started cells, they will usually swarm and go out with the old queen. This plan scatters the bees and therefore relieves to a certain extent the crowded condition in the brood nest. If empty combs are inserted between the frames of brood, it will usually entirely prevent swarming.

However, these methods leave considerable to be desired. By scattering the brood and bees in this manner the queen does not lay as she would had she been left in the brood nest as she had arranged it. If this scattering is done before the swarming fever is on, it interrupts brood rearing to such an extent as to materially weaken the colony near the close of the honeyflow, when it should be strong.

A number of years ago I noticed that in taking bees away from certain colonies for use in the swarm box, those colonies kept up brood rearing much better than those from which no bees were taken. The bees, evidently feeling that they were not strong when the bees were taken from them, kept the hive filled with brood. After being out twenty-four hours the bees were returned. I also noticed that the cell-finishing colonies, where extra brood from other hives was given, continued to rear a large amount of brood, while others reared much less. It was also noted that these colonies never swarmed. I attributed both the continuation of brood rearing and the non-swarming tendency to the fact that the extra brood given above drew up out of the brood nest both old and young



Open air colonies on court house at Visalia. These colonies swarmed regularly every year.

bees. Although the population of the colony may have been 150,000, yet, as the brood nest was not crowded, the queen continued to lay in order to crowd it before swarming.

Observing this trait, I was anxious to try it on other colonies to see if it would prevent swarming. I went to twenty-four of my strongest colonies that were to be used for extracted honey, and gave them extracting supers with empty combs. Then I went to some weak colonies that had old queens and took from them all of their brood. Two frames of brood were placed in each extracting super. The result was that the nurse bees were drawn up from the crowded brood nest to care for the brood. There being empty combs between these frames of brood, these frames were also occupied by other bees. The next day after treating these colonies I observed that many of them were killing their drones, showing how completely they had given up the idea of swarming.

While they were doing this, other colonies not so treated were building cells preparatory to swarming. In one or two cases colonies that had cells started tore them down when brood was given above. Another very desirable feature with the colo-

nies so treated was that they continued to fill the hive with brood. The above method I have used more or less for a number of years and never had a colony swarm when so treated. The weak colony with an old queen, of course, did not swarm, for all the brood had been removed. This causes the old queen to lay her best to build up the colony. This is what I term "draining the queen of her last eggs." As soon as she has what brood in the hive that she can put there the colony is requeened. Usually by the time the brood above is hatched the honeyflow is on in earnest and no further danger of swarms.

From the above it can be seen that the fact that a colony is strong in numbers does not mean that it is more apt to swarm than a colony not so strong, but the great feature is to draw the bees out of the brood nest. Empty combs alone will not accomplish this, but frames of brood with no adhering bees given from another colony will accomplish several desirable objects. It will start the bees to work in the supers; it will prevent swarming; it will cause the queen to continue to lay, and it will make the colony stronger by giving the extra brood.

darning needle. He is lively on his feet, and an old woman seeing him skipping about near her home in that fashion, phoned the chief that a crazy man was running about on the marsh near her house and she was awfully scared. The chief promptly sent a cop to arrest him, and the cop was of the same opinion as the old woman and took him to headquarters.

"Why," said the chief, "that is Professor Kinkaid, the greatest entomologist in the United States," and the Professor was promptly set at liberty.

The female of our *Bombus* is quite large and black. The worker is rather small, hardly half as large as the female, and black. They will nest anywhere above the ground. A handful of lint or an old mouse nest put into an old shoe or boot or little box with a few pieces of board thrown over is almost sure to get a colony, for they are quite numerous here.

The remarkable characteristic of this species is that it puts up no defense at all. I have opened up many of the nests with a little stick, taking them all apart for examination with the little black fellows all about me, yet I was never stung.

I have been watching this *Bombus* for several years past and from a horticultural point of view am in love with it. It is the most rapid *Bombus* in its movements from flower to flower that I ever saw. It will, in a given time, visit five times as many flowers as a honeybee. It will work early and late and during our drizzling rains when the bees stay at home. It works on all kinds of flowers. The horticultural economic value of this particular species is not understood and appreciated as it will be some future day. The time is coming when little colonies will be introduced into the greenhouses, will be at home there and do the work of intrepollination among such plants as cucumbers, to perfection.

It seems to be extremely hardy.

I am glad Professor Frison is getting down to business on this most interesting subject.

Washington.

Sulphur Injury

The following appears to be rather unfavorable to the use of sulphur on combs. We had already seen some unfavorable statements concerning it.—Editor.

Holly, Colo., April 11, 1925.

Years ago I dusted my bees and combs with sulphur as described by J. E. Thomson, page 171, April, 1925, A. B. J. Wherever the dust went into the cells it killed the unsealed brood. The bees would not clean out the sulphur dust in the cells, and eggs laid later on were killed also. I had to give them clean combs and use the sulphured combs for the supers. I lost a honey crop that year. The bees lost so much brood they were barely able to build up for winter.

C. Stimson.

Bumblebees and Pollination

By Stephen J. Harmeling.

PROFESSOR FRISON'S most interesting article on the bumblebees (January A. B. J., page 18) brings up a host of memories of by-gone and boyhood days.

The Professor is silent on the stinger, and I am wondering if he ever monkeyed with that *Bombus Pennsylvanicus*. The books say its tongue is 14mm. long, but the most interesting part of its anatomy to me, 60 years ago, was the size and length of its stinger. I then was cocksure it was a foot long and it knew awfully well how to use it.

This species usually made its nest in the ground in wheat fields or in meadows. They were troublemakers when the reapers and mowers commenced their work. They attacked the hired man and the horses and the old "Kerby" reaper became a wreck and the man had a narrow escape.

Sport, my trusty collie, and I were pals. He would have died for me any time. That day the die was cast—the Rubicon was crossed. Pal and I set out for vengeance with fearless valor and all our war strategy. It was a rainy day and all the *Bombus* warriors were in the fort. I had a shiny paddle. Sport rolled up his lips so that his mouth was all teeth.

The hole was about half an inch in diameter. The plan of attack was to paddle each warrior as he emerged from the hole and Pal was to bite those the paddle missed. It worked beautifully at first, but they began to come

faster and faster. I paddled as fast as I could and Sport snapped and howled as fast as he could. I was attacked in the rear and their javelins went through my blue jeans and my hickory shirt. We blockaded them with a handful of earth on the hole, took a rest and studied the situation. On they came, having bored through the earth we put on. The battle was on again and we gained a complete and glorious victory. The tunnel was about two feet long to the nest, which was about ten inches under ground in a pile of litter which had been turned under by the plow. The bunch of comb was about the size of the crown of a man's hat and pal and I had nearly a cup full of very thin honey, but wonderfully sweet.

Pal and I gained many such victories in those bygone days and enjoyed the spoils of war on the 50-50 basis. No one can fool us on the size of the stinger of the Pennsylvania-cuss species.

Here in Washington we have a rather remarkable species. I dare not venture to name it until I have seen Professor Trevor Kinkaid, the entomologist of the Washington University. I cannot forbear to tell a good joke on him which I know he enjoys as much as any of us.

There was a great gathering of the state educators at Olympia, the capital of this state. During one of the recesses, Professor Kinkaid took his net and pole, went out on the salt marsh adjoining the city and tried to get a specimen of a certain devil's

Will Breeding Change the Honeybee?

By J. E. Crane.

Can bees be improved? Doubtless. There have been wonderful improvements in our various breeds of domestic animals as well as cultivated plants.

While moving any species of plant or animal to a new environment has a tendency to change it somewhat to fit it for the changed conditions with which it is surrounded, yet most of the changes appear to have been made by various breeders for some particular end or purpose. Not only have animals and plants been changed, but they have been changed in different directions for different purposes. Some cattle have been bred for their size and value for meat while other breeds have been developed for dairy purposes; breeds of sheep for their meat and other breeds for the amount and quality of wool they could produce. Dogs have been bred for hunting, for watch dogs, for draft animals, and many other purposes. Not only have animals been moulded into various breeds for the use, or to suit the whims of mankind; birds, too, have shared the same fate, as the great variety of our domestic fowls testify. Plants have been changed even more than animals; some for the beauty of their flowers and others for greater productiveness of seed or fruit, early maturity or other desirable qualities.

Can our honeybees be changed in the same way? I believe they can.

Already we have several quite distinct breeds of bees, as the Italian, German, Carniolan, Caucasian, etc. These are doubtless the result of climate and environment rather than the work of man. We have one breed in this country as a result of careful breeding that shows what can be done. The golden Italians have been bred for color very successfully, and a breed of great beauty produced. Whether great beauty can be combined with great productiveness is a question not yet settled.

To a person who sees bees but rarely or who, having hives, visit them only a few times in a season, "bees are bees," and all alike; although they may notice the difference between black and Italian bees, they can see no other difference. But for a person who works day in and out, week after week or for months together, handling his bees, each colony becomes a distinct unit having its own marked character, often quite distinct from the rest.

One colony will remain quiet on the combs when the hive is opened, while another is nervous or restless and will race over the comb like a flock of frightened sheep. One colony may use wax to close cracks or crevices when another will use propolis, and may not stop at filling cracks but will daub it over the sides of the hive and perhaps the combs as well.

A great difference will be found in the color of different colonies; some may be bright yellow and others quite dark or "leather colored."

We may find a colony of peculiar appearance and know at once that the queen has mated with a Carniolan drone.

Some colonies are good at building nice, white combs in sections, while others make poor work of it and mix dirt or propolis with their wax, making what we call "travel stain." There is a noticeable difference in the size of bees from different colonies; some work in cooler weather than others, and earlier in the morning, or later at night.

One will not handle bees long before he notices a great difference in their disposition. While one colony is as gentle as flies and may be handled without smoke, the next may be as vicious as wasps, and difficult to manage even with smoke. Some colonies are much more resistant to disease than others, a quality that often makes all the difference between success and failure.

I will mention only one or two other qualities that add to their value, and these are strength or vigor and longevity. These are important.

I had once two colonies that I nursed through the season, hoping to make them good for the following year, but the next year I had it to do over again, and for two seasons they were a bill of expense with no profit. As a contrast to these, I had a colony one spring that had in some way during the winter lost most of its bees; only a teacup full, as I remember, remained. They began rearing brood in one corner of their hive, made everything count and with a little assistance from me built up and stored one hundred pounds of surplus honey.

The combination of these various traits in different degrees, with others I have not room to mention, makes an almost endless variety of character. How we may strengthen the more desirable traits and hold back those less desirable, are questions of immense importance to every beekeeper. If one colony gives us 100 pounds of honey while one by the side of it equally strong gives us but 60 pounds we feel pretty sure it must be because one is stronger, more vigorous or industrious than the other. If we talk of improving our stock we are met by the old objection that we cannot control the mating. Nevertheless, I believe the chance for improvement is far greater than with domestic animals. If we have black bees, how quickly they can be changed to some other breed, although we may use but a single queen. If we have 100 colonies it is not a difficult matter, as we

go over them, to note the most gentle and productive colonies. Or if we are producing section honey, to note those colonies that give us the largest number of fancy sections. We have a way of placing the number of the hive on each super of sections so we may know where the best as well as the poorest come from.

Now if we breed from our best colonies year after year, while we keep our least productive ones from rearing drones, we may be surprised to see the improvement we have made.

Nonsense About Bees

By R. Deimer.

There seems to be more nonsense published about bees than ever before, and I believe it is the duty of the bee journals to straighten this out.

I am sorry to notice that some of the writers about bees in popular magazines do not know anything about them, but merely rehash all the nonsense that was ever written on the subject.

I doubt if anybody could ever write more nonsense in such a short article as Mr. George H. Dacy put in his article, "A Time Clock on the Honeybee," in the May issue of Popular Science Monthly:

"Each bee has its own place in life, and its life work is appointed at birth. Moreover, whether it be honey gatherer, sentinel, or comb builder, the bee never attempts to change its occupation, nor to rise beyond its station."

"This homing instinct is one of the bee's strongest traits. If the hive is moved while the bee is out, upon returning it will start immediately to the former location and wander about in a troubled way until it finds its home. If eggs are taken from one hive and hatched in another, the young bees will return to the original hive as soon as they are able to fly."

(We have often sent corrections to magazines publishing nonsense about bees, but it does not usually serve the purpose, for they ignore our statements. The trouble is that they do not publish things for **information**, but for **sensation**. The more incredible a thing is, the more willing they are to publish it. If we were informed about other subjects as we are about bees, we would probably find out that the public is misled more or less on almost every subject. Publishing the corrections in our own bee magazines would be only talking to the wind, as the average magazine reader does not read bee magazines. We advise those of our readers who find errors in magazines to write to the publisher themselves, to protest against erroneous statements.—Editor.)



A Sample of English Weather

By R. B. Manley.

THIS picture gives a fair idea of what the climate of old England is in the matter of uncertainty. This snow began to fall on Saturday, April 26, 1908, and in the morning of the 27th was about 18 inches deep on the level.

This is the only deep snow I have ever seen, so far as I can remember.

It is this great uncertainty in our weather conditions that makes successful honey production in England such that one never can tell a day

in advance when the honey flow will be. This necessitates our maintaining our colonies at full working pitch all the summer—a very difficult thing when weather is cold or snappy. And right here I want to thank you for putting the Modified Dadant hive before us. For me it has solved this difficulty to a very great extent. I have used it for three full years and I am quite satisfied that it has halved my labor and doubled my honey crop. England.

Cleaning Seeds with Honey

By G. H. Cale.

SEEMS crazier than using honey to keep the auto from freezing, and I don't know that I would have believed the tale myself if I had not talked with the fellow who does it. It is none other than our old friend Harry Warren, the comb honey wizard Ernest Root wrote about in *Gleanings*. You may remember the story of how Warren secured a location in Nevada, bought about 1200 packages from Wing in California and set them all to housekeeping, with his wife's help. He then played janitor to the bunch until they had laid away a comfortable margin, then he stepped in and made a goodly profit from the surplus.

I have one of Warren's cards before me. It reads: "Harry R. Warren, President, Warren Seed Cleaning Co., Chicago, Illinois." Harry and honey are inseparable, so you have to credit his genius for bringing the delectable sweet into a new and unique use. In Nevada he became interested in alfalfa seed. The thing that impressed him most in all his seed examinations was the tremendous amount of weed seed, even in alfalfa called clean. A pound of alfalfa seed and of some of the clovers contains 225,000 seeds. If this is 99 per cent pure it still bears one weed seed to each 100 pure seeds.

This figure does not yet strike the imagination. Let us go further. The average seeding of alfalfa or clover is ten pounds to the acre. With the above impurity, that means twenty-two-thousand-five-hundred weed seeds

to the acre. The farmer exclaims: "Well, here is a new weed I never saw before. Where in tophet did it come from?" He bought it in his clean seed and there is no way to help it. At least there has not been so far, but Warren's scheme may change the story.

He became much interested in a possible method of further improving the cleaning of seed. It opened up a big vista of agricultural improvement. Finally he hit on a promising method, the separation of seeds by gravitational differences. It is easy to see how this may work. When seed is thrown on the surface of water the heavier seeds sink and the lighter ones float. Some may sink part way and some go clear to the bottom. Water, however, will not separate all of the lighter seeds, so other liquids are used in varying mixtures until the seeds do separate simply by varying their weight displacement in the prepared liquid.

This sounds simple, but the machinery to make the method work in practice has taken much time and thought to build. It looks now as though Warren has solved the seed cleaning problem. By gravitational separation in the cleaning liquids he is able to float out and dry even the finest of seeds in utmost purity.

Now we come to the point of the story. One of the special liquids is a definite mixture of honey and water. Honey serves this purpose very well, and Warren is enthusiastic over the possibilities in it for the beekeeper. Of course, he hopes for a wide use of the cleaning ma-

chinery and, with it, an increasing demand for honey for seed cleaning. So do all of us, Harry. If your method is generally used you can't get rich without the beekeeper getting a little richer, too.

Introducing the Queen

As I have been introducing queens for years from spring until fall, nearly every day, and under all conditions, I have tried out different methods. A queen is very seldom lost in introducing by the following method:

Remove the queen from the hive to be requeened. Place the new queen alone in a Miller introducing cage, with a piece of tin over candy end of cage. Insert caged queen between two frames of brood, candy end down, hanging cage by a small nail driven in the end of wooden slide. On the fifth or sixth day after introducing queen, remove the tin from the cage and replace cage, at the same time destroying all queen cells.

If the bees are thick on the frames, give the frame a slight jar to dislodge a portion of them in the hive, removing a frame first to make room, so that the cells may be readily seen. Do not disturb for five days.

The queen may be introduced in the cage she came in by removing attendants and proceeding as described above. The Miller cage is better, as it puts the queen where the nurse bees are. Upon the removal of the tin, the queen in most cases will be found fully developed and dropping eggs in the cage, and she starts to lay when released by Ohio.

(The above method is a little slower than ours and that recommended by most breeders, as it requires that the queen be kept caged till queen cells are reared. But, it must be equally successful, if all the queen cells are carefully destroyed.—Editor.)

Apologies to Dr. Merrill

"Tis human to err, but it seems we erred "right smart" in Dr. Merrill's article in the April issue. I quote from his letter:

"I find a statement in my article that is not only misleading, but is incriminating. In the fourth paragraph on page 172, the next to the last sentence reads: 'All of these columns were given identical manipulation throughout the season.' Had we manipulated our columns I would not have felt like publishing the fact. If you will refer to the manuscript you will find that the word columns is spelled colonies.

"Also, in Table 4, under Queen C, there are two colonies No. 26. The first of these should be changed to No. 25. Similarly, under Queen D there are two No. 25. The first of these should be changed to No. 26."

Readers, take your pencil and make these corrections. Then read over the article again. It is worth it.

THE EDITOR'S ANSWERS

When stamp is enclosed, the editor will answer questions by mail. Since we have far more questions than we can print in the space available, several months sometimes elapse before answers appear.

DEMAREEING—FOULBROOD

1. Would you consider it a good and safe plan to requeen when practicing the Demaree method, by killing old queen about fifteen days after the brood is placed in top super?

2. Is there much danger of a swarm being led out and not returning when virgin queen goes out on mating flight when this method of requeening is practiced?

3. Have you tried or seen tried any of the advertised American foulbrood solutions, and do you think they are practical as to cost and protection or is it cheaper and best to destroy bees and hive when but a few colonies are affected?

4. My colonies are now almost filled with pussy willow honey. What use can I make of it, as the dandelions are now in bloom and some supers are filled with pussy willow honey?

WISCONSIN.

Answers.—1. I believe that it would be all right to kill the old queen when the upper Demaree hive of brood has been moved about fifteen days. But I believe I would make sure that there are queen cells ready to hatch, and I would try to destroy all but the best looking one of those queen cells. I have never tried the method myself.

2. Usually, the swarm which is led out and does not return goes when there is but little brood remaining in the hive. The bees then feel very little interest in the old home. To help matters, give a comb of brood to the swarm, when you hive it.

3. I have never tried any of the solutions, but I believe the Hutzelman solution is good if properly used. But if I had only a few colonies affected, I would destroy the brood, burn it, and melt up its combs. It would probably be safer than playing with it, even if there is a little profit in treating the combs.

4. Never having had honey from pussy willow, I cannot advise, but if it is anything like the willow honey of Louisiana, it is not worth much. But I would extract it and keep it for spring feeding when there happens to be a spring of short crop. Dandelion bloom makes good honey, though dark and strong. It pleases some people.

OHIO ASSOCIATION

Will you please give me some information about the Beekeepers' Association in Ohio. What are the advantages and what obligations? Do they handle supplies or honey for the members, and on what terms? Who is their secretary or agent and what is his address?

Answer.—Mr. Dadant has asked me to reply to your inquiry regarding the Ohio Beekeepers' Association.

Our association was reorganized two years ago, and while we have made steady progress since that time, our membership is not yet large enough to undertake the marketing of honey. That is almost a business by itself. We have adopted the trade name of "Buckeye Brand" for Ohio honey, the state label to be used only by members of the association. Members who have used it report much larger sales than with an individual label, as it bears a guaranty of quality. I shall be glad to send you a sample of this label as soon as we have the new ones ready.

Our association started the State Fair honey exhibits two years ago, securing from the fair board nearly \$600 to be given in prizes. Last year the amount was almost doubled. Mr. Kindig, director of apiculture inspection in Michigan, who was judge of the honey and bee exhibits, said we had the finest display he had ever seen. All these things go a long way toward increasing the use and sale of honey.

Most of the local organizations handle supplies, but as these have to be ordered in large quantities, our membership is too widely scattered over the state to make it practical. I hope to arrange to supply glass jars this summer, if the plan can be worked out.

Membership dues in the association are one dollar a year.

MISS FLORENCE NAILE,
Secretary,
118 W. Northwood Ave. Columbus.

TRANSFERRING—INCREASE

1. I have eight colonies of bees, two in eight-frame hives and the balance in tens, and they all need paint. Would it be all right to put a ten-frame hive on the stand the eight is on and transfer the frames and add two frames with full sheets of foundation? Would this extra room tend to discourage swarming?

2. Could I successfully make artificial increase in the following manner. Take three frames of brood from one colony and put in a new hive, leaving the old colony on the same stand, and take two frames from another colony and put in this new hive and set the new hive on the stand of the second colony and move the one I took two frames from to a new location? Filling all hives with full sheets of foundation?

3. If this will be successful, would I have to introduce a new queen, or would this new colony rear a queen itself?

4. If I introduce a new queen, how soon after the divide should the queen be introduced and when would it be best to do this work? Would when the apple trees are in bloom be a good time?

5. Where can I get good three-banded Italian queens? Do you have them for sale? What price are they?

ILLINOIS.

Answers.—1. Yes, it is all right to transfer in new hives, so as to paint the joints as well as the face of the hive bodies. Two sheets of foundation added would certainly have a tendency to discourage swarming, though not a positive preventive.

2. Yes, the method you suggest for artificial swarming is all right. This makes one increase from two old colonies. Later you may do it again, if more increase is wanted and the season a good one.

3. Of course, if you have a new queen to give to each division, you will gain that much time, but the bees can rear their own queens. If you do the latter way and wish to have a number of divisions, make one division with your best colony first. Then, on the ninth day after making the division, count your queen cells. You may then make as many divisions as you have queen cells to spare, leaving one in the original swarm, of course. Then, on the tenth day, give each of those divisions a queen cell. You may use a cell protector if you wish, but I never did, and rarely lost any cells. On the tenth day, the bees that have been

queenless 24 hours are fully aware of it and are nearly always in good trim to accept a queen cell.

4. If you introduce a new queen, you should secure her before you make your division, then introduce her to the queenless colony the day after making it queenless. The cage method is the best. When the apple trees are in bloom is usually too early to make divisions. Better wait till the white clover is in full bloom. That is usually three weeks after the first blossoms appear.

5. You must look among the advertisers to buy your queens. It would not do for me to recommend one man apart from the others. Don't buy queens that are too cheap. Buy good queens; they are worth good money.

HOLDING A SWARM

I have had, for the last two days, two very fine swarms of bees to go off. They came out of the hive and clustered on a nearby bush, and by the time I could get to them with a hive they would begin to get up in the air, and in just a few minutes they would be gone.

Do they find a tree somewhere before they come out of the hive? If so why do they cluster before they leave? Are they supposed to go straight to the tree when they leave? Is there any way to keep them from leaving? Why do some leave and others hang on a limb for twenty-four hours?

These may be foolish questions to you, but will be of great interest to me at present.

ALABAMA.

Answer.—No, these are not foolish questions, for we have wondered at the behavior of bees many times. However, in this instance we may explain that the first swarms always settle, because the old queen is heavy with eggs and wants to rest. But the secondary swarms have a young queen and she does not care to settle. Sometimes she wants to go on her wedding flight and she starts most unexpectedly, sometimes hardly allowing the swarm to settle. Those are what they call "runaway swarms."

Bees often seek a new abode before they swarm, but not always, and that does not make much difference with their settling. But the secondary swarms, I believe, rarely have a home in view.

The best way to prevent these secondary swarms is to destroy all queen cells but one, after the hive has swarmed, or else place the swarm in the location of the old colony, moving the latter to a new stand. Having lost all its field bees, it would be much less likely to swarm.

OLD COMBS IN SUPER—INTRODUCING QUEENS

1. I have a number of combs which have been used in the brood chamber for three or four years and are about as black as they can get; also contain some cells of pollen. If I should use these combs in the extracting super during the clover flow, will they give light honey a dark color or injure the flavor in any way?

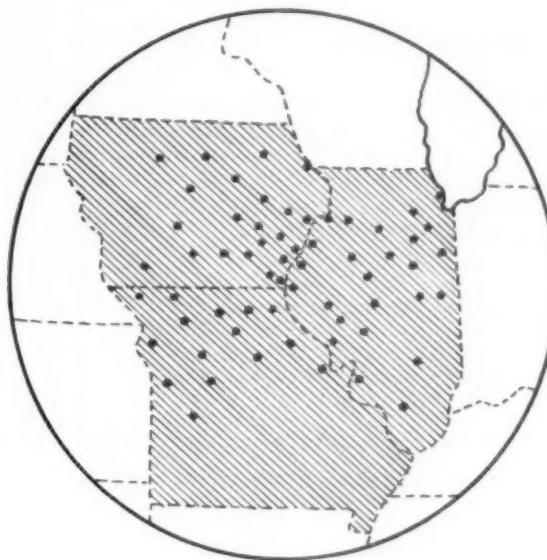
2. When introducing queens raised in your own yard, is it necessary to use candy in an ordinary cage? I have introduced several queens by placing cage under bee escape hole in inner cover, with a plug in candy hole in the cage; two or three days later raise the cover and pull out the plug without disturbing them any more than necessary. If the queen had anything to eat while in the cage, the bees would have to feed her through the screen. Can they be depended upon to do this, or is it better to use candy?

Answers.—1. Dark combs, if they have been under the control of the bees long enough to be burnished by them before putting in honey, are just as good as light

(Continued on page 280)



Hives
Frames
Supers



Veils
Smokers
Tools

RIGHT HERE AT HOME, FOLKS with any quantity of Lewis "Beeware" you may need.

Our dealers cover Iowa, Missouri and Illinois at places shown in above map. The nearest dealer's name is on your 1925 catalogue. Write for your copy, if you haven't one.

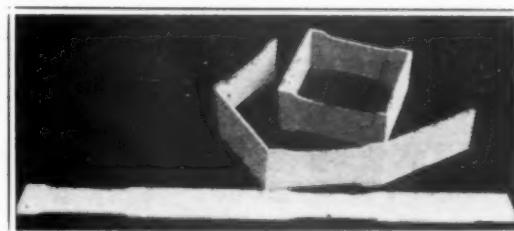
When the swarm is on the bush, wire, phone or write. You'll get QUALITY and SERVICE.

But---beat that swarm, if possible. Order early. It will save you honey and worry---and will let us sleep nights.

Yours for a big year

Dadant & Sons, Hamilton, Illinois

Distributors of Lewis "Beeware"
for Iowa, Missouri and Illinois.



Lewis high-grade, velvet finished Sections

(Continued from page 278)

Better Service for the Buyer of Bee Supplies

is one of the principal aims of our business. We believe, therefore, that our greatest usefulness lies in supplying **WHAT you need, WHEN you need it.**

We are manufacturers and distributors of just a little better bee supplies, just a little higher grade **SECTIONS, Bee Hives and Frames**, in fact, everything the beekeeper needs.

Write for our free illustrated catalog and price list today.

August Lotz Company, Boyd, Wis.

The Alcohol-Formalin Solution

Has stood the severest tests throughout the past four years. It has passed tests where water-formalin solutions and other water solutions have frequently failed.

Comparative tests in my own apiaries have shown that water disinfectants frequently give rise to recurrences of American foulbrood.

Save your infected combs by disinfecting with the

HUTZELMAN SOLUTION
Patented October 14, 1924

For full information ask your dealer or write to

J. C. Hutzelman, Glendale, Ohio

DITTMER COMB FOUNDATION

If you want nice yellow foundation made of pure beeswax and without the use of acids and adulterants of any kind, try Dittmer's. It will stand the extreme test required of Pure Wax.

We make a Specialty of working your wax for Cash.

Write us for samples and prices.

A full line of supplies and the Best Sections and Hives made in Wisconsin, at lowest prices and in any quantity.

GUS DITTMER COMPANY, Augusta, Wisconsin

The Engravings Appearing in this Publication are made by the

Waterloo Engraving & Service Company
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Makers of Metal Engravings and Electrotypers. Designs Furnished for Letterheads, Labels, Etc. We do no Printing.

WRITE IF YOU NEED DESIGNS

colored combs. I have taken the whitest possible honey from combs that were nearly black. It is only when they are crowded and combs are given them in which they must put honey immediately that there is a chance for a little taint. At least that is my explanation of why white honey is usually untainted by being in dark combs.

2. A queen may be introduced without any food. I have never seen a case when the queen was not fed, even if there were half a dozen queens in cages in the same hive and a laying queen at freedom on the combs. The only time when I have seen queens suffer of hunger was when the bees were short of food.

MISCELLANEOUS

1. I have a Perfection honey gate which is not painted inside; the rough iron is hard to clean and it blackens the honey if left for a time. I should think it would be better if the gates were galvanized. Do you know where I could get any enamel or paint that would be suitable to coat the inside of this gate? This gate is used for hot honey.

2. Would it be all right to keep comb foundation in the cellar in summer?

3. What do you think would be a fair price for sweet clover honey, high quality, in 60-pound cans? IOWA.

Answers.—1. Honey gates are sold which are coppered over on the inside. They are satisfactory. Perhaps tinsmiths might tin them over as well.

2. Comb foundation may be kept in a dry cellar. I would not like to keep it in a damp cellar for fear of mould. But, in the summer, any room will do to keep it in, if it is kept away from dust or sun.

3. Sweet clover honey has sold readily at 10 cents in 60-pound cans. But this is not the time to sell honey. The proper time is fall, from September till after the holidays, although it may sell readily enough all winter.

FEEDING A F B HONEY

I find some American foulbrood in one of my apiaries; can I feed back the honey if I cook it in a steam pressure cooker? If so, at what pressure should the gauge read and how long should I cook it?

NEVADA.

Answer.—According to our scientists, who have made experiments, the honey must be boiled at least a half hour. There is nothing said about any particular pressure, but the water must boil for that length of time.

Be sure also to disinfect any parts that have come in contact with bees carrying the disease. We like a tinner's gasoline torch the best, to singe every part of the hive. It may be applied at once and does quick work.

WAGES

Lady of mature years, quick, ambitious, and willing to work, who has held well paid positions requiring responsibility and management, desires to work in an apiary and learn the business so as to engage in it. Her only experience with bees was as a child with skeps; she has also attended a winter college short course in beekeeping. What are the highest financial returns, by the month, she may expect for her services the first season, beginning work when bees are building up and continuing through the honey harvest? What is the usual practice in the most up-to-date commercial apiaries?

NEBRASKA.

Answer.—This is difficult to answer and we prefer to leave it to our readers to reply. I have never heard of a lady beekeeper hiring out to take care of bees, though it is quite in the line of possible things.

Meetings and Events

Centennial of Hancock County, Illinois

This was a local celebration, but it was of much interest to the American Bee Journal staff, because we were invited to participate in a "Scientific and Nature Lovers' Congress" at Carthage College. The late Charles Dadant, C. P. Dadant and Frank C. Pellett were made the recipients of honors by the side of such noted deceased American scientists as Professor Worthen, at one time Illinois state geologist. An afternoon entertainment included addresses by President Hoover of Carthage College, Judge Charles Scofield, Dr. Lambert, Dr. Hill, Dr. A. R. Crook of the State Museum, Dr. Bray of Syracuse, and screen pictures of Pellett's "Back Door Neighbors," by himself and loudly applauded, and of Beekeeping by G. H. Cale. Miss Alice L. Kibbe of the biological department of Carthage College was the successful organizer of this centennial demonstration, which ended with a banquet.

Beehive on Straus Building

At the very top of the towering Straus building, in Chicago, the home of the S. W. Straus Company, is a huge "straw" skep, placed there as a symbol of industry and thrift. It is 25 feet high and 16 feet in diameter, yet, from the street, it looks little larger than a life-size skep. Its tip is nearly 500 feet above Michigan boulevard.

It is made of a steel web, protected by copper to prevent rust and deterioration. Then heavy glass, especially cast in the color of straw, and painted on the inside with gold leaf to give a golden tint, seen in the sun's reflection by day, and in the glow of 250 high powered lamps within the cone at night.

Iowa Scholarship

A fellowship has recently been granted by the Iowa Beekeepers' Association. This scholarship amounts to \$120 and will be given to any poor boy over seventeen who has not completed high school but who is desirous of going on with some college work. It will be necessary to take into consideration the interest of the contestant in beekeeping. The bulk of the award will be made on the prize essay on honey, this essay not to be more than two thousand words in length. More complete details will be available in the immediate future, but will not interfere with notice at this time. All of the essays must be in by August 1 and the award will be made about September 1.

Twenty-five Years with Bees

A 20-page pamphlet with the above title attracted my eyes and it was so interesting that it was not until I reached page 16 that I realized that this was a pretty well gotten up circular and price list. Compliments to friend Jay Smith, for he is the author of this little booklet, and he has put in practice the motto of the one-time advertising firm, "Lord & Thomas,"

which motto was, "Advertise judiciously." The booklet is exceedingly interesting and, although we do not propose to advertise any one's business in the reading columns, this is so cute that we felt in duty bound to mention it.

More Radio Talks

F. M. Parsons, secretary-treasurer of the Nebraska Honey Producers' Association, gives monthly "Radio Lessons in Beekeeping" at 8 p. m. on the first Friday evening of each month, radio-casting by the Omaha Grain Exchange, radio station WAAW, 384.6 meters.

He writes: "Should any member wish to secure a receiving set at low cost, sufficient for receiving programs from Omaha station, please let us know and we will have special low prices quoted on same." Mr. Parsons' address is 4202 Cuming street, Omaha, Nebraska.

Appropriation in Tennessee

Dr. G. M. Bentley, state entomologist of Tennessee, writes us that the Legislature has increased the appropriation for apiary inspection service by a thousand dollars. Mr. Bentley writes:

"We have as our state inspector Mr. W. L. Walling, a careful, energetic beekeeper and one who takes well with our people. With the increased appropriation we will be able to clean up the state of the few cases of American foulbrood which we now have. We will start immediately the area clean-up method."

New Hampshire Law

The Governor of New Hampshire has just signed House bill 294, which provides for the inspection of apiaries in New Hampshire and which forbids the shipping into the state of bees which are not inspected. This puts the state on a par with other New England states as far as shipping bees into the state and into other states is concerned. It also gives the inspector the right to enter any apiary and destroy diseased bees, if the owner refuses to do so.

States Barring Bees on Combs

Among the states prohibiting the entry of bees on combs are:

Arizona, Florida, Idaho, Louisiana, Maryland, Massachusetts, Michigan, Mississippi, Missouri, Nevada, New Jersey, North Dakota, Ohio, Oregon, Pennsylvania, Texas, Wyoming.

No doubt there are other states having similar laws, but of which we do not have information at this time.

Radio Returns

The talk on beekeeping, given over the radio by Dr. A. C. Baxter from Rock Island, Illinois, on February 13, is typical, in its returns, of the value of such effort. Dr. Baxter writes that he received 584 letters and 260 telegrams, after the talk, from people interested in what he had to say

(Continued on page 285)

CARNIOLANS

carefully bred show the following desirable traits to a high degree: They are very gentle, very prolific at all times, build very white combs, are most excellent workers, resist brood diseases as well as any bees, and do not swarm excessively if intelligently managed. My paper, "MERITS OF THE CARNIOLAN BEE," describes Carniolans more fully and outlines successful plans of managing these bees. Free for the asking.

I supply Carniolans of my own strain, 13 years selection and breeding, and the Jan Strgar and M. Ambrozie imported strains. Breeders imported 1924.

ITALIANS

I am rearing Italian queens 12 miles from Carniolans, C. B. Hamilton strain. The mother of this breeder produced 577 sections of comb honey.

1 untested queen, either strain \$ 1.50
12 untested queens, either strain \$16.00
Tested queens, each \$ 2.50

Safe arrival and satisfaction guaranteed.

ALBERT G. HANN

Glen Gardner New Jersey

WESTERN BEEKEEPERS!

We handle the finest line of bee supplies. Send for our 1924 price list. Our quotations will interest you.

The Colorado Honey Producers' Association, 1424 Market St., Denver, Colo.

THREE-BAND ITALIAN BEES AND QUEENS

Two-lb package with untested queen, \$4.50;
1 untested queen, \$1.00; \$10.00 per dozen;
1 tested queen, \$1.50. My motto is quality.
No disease; safe arrival and satisfaction
guaranteed.

J. ALLEN, CATHERINE, ALA.

MONTANA & NORTHWEST

Lewis "Beeware," Dadant's Wired Foundation, Woodman Smokers. Cans and Glass Honey Containers Write for Catalog. Service. Quality.

B. F. SMITH, JR.,
Fromberg, Mont.

More bees for same cash for balance of season. Same service and bees. "Introduced and laying enroute to you." Health certificate attached. Satisfaction guaranteed.

JES DALTON,
Bordelonville, Louisiana.

Carload quantities of Root goods and Airco foundation stocked here in Pueblo, to insure the best of service to Colorado producers. Write for our special prices.

Chas. Kastning,
DISTRIBUTOR

1105 Cypress Street, Pueblo, Colo.

SEASON 1925

Pacific Citrus Honey Company

Office 221 Chancery Building, 564 Market St., San Francisco, Calif.

PRICES—QUEENS

Three Banded Italians

1—Mated, untested, \$1.00; 6 for \$5.00; over 12, 70c each.

PACKAGE BEES

In 2-pound packages.

1 to 10 at \$2.50 with queens at \$3.50
10 to 100 at \$2.00 with queens at \$2.50
Over 100, with queens \$2.25

Large orders will be given special quotation.

Terms cash—10 per cent with order, balance before shipment.

A Letter From Arizona

By B. A. Hadsell.

I have been a beekeeper for 66 years, but handle bees in a different way from what I did before the Civil War. It was the first numbers of the American Bee Journal which gave the bee fever to my father and me; but he soon turned the bees over to me.

I was lost without the American Bee Journal, while the Civil War lasted, and many things that I learned in Ohio I had to learn over when I came to Arizona; the honey flow there excited swarming, here it stops swarming. Here, where I am producing honey by the carload and nearly always short of help, having to do my own cooking, and with only two hands during extracting time, I have to use some short cuts that are not always orthodox.

We have mesquite and desert bloom, followed by cotton, and have the hives stacked high and boiling with bees, with many combs of brood even in the supers. To make increase I take some of this brood, put it in an empty hive and set it in the place of a strong colony, moving this colony to a new place.

In Arizona, where the thermometer goes up to 115 degrees, I formerly built brush sheds, a good plan, still followed by many beekeepers, except myself.

My bees are in reach of about 7,000 acres of alfalfa run partly for hay and partly for dairy, and about 5,000 acres of cotton. As the range cattle often keep the pasture from blooming, I took a truck last June and moved 3 apiaries, all alone, 20 miles from the alfalfa pasture to an alfalfa seed range, and they filled up 60 to 150 pounds in about 3 weeks. As I had no time to build sheds, I went to the grocery store, got a lot of pasteboard boxes, opened them flat and loaded them on my truck. When I reached the apiary, I put the flat pasteboard on the hives and put a few shovels of dirt on top of each to hold it down and did not lose a single colony from melting down.

The last two dry years we had, I have had to feed several tons of honey and sugar syrup, but I never paid a cent for feeders. I go to the town dump and select the bright, clean, empty fruit cans; they are just right for liquid syrup or honey. I remove a few combs from the super and put in my cans, and in 3 or 4 days they are empty.

The bees are in good shape this winter; there has been some rain; our honey has all sold at fair prices and there are many calls for more. No other industry in these parts pays as well as the bees do.

Carload quantities of Root goods ready for prompt shipments. We promise Kansas producers the utmost in satisfaction and service.

A. V. SMALL

Augusta, Kansas.

American Bee Journal

TENNESSEE-BRED QUEENS

Fifty-three Years' Experience in Queen-Rearing
Breed Three-Band Italians Only

	Nov. 1 to June 1			June 1 to July 1			July 1 to Nov. 1		
	1	6	12	1	6	12	1	6	12
Untested	\$2.00	\$8.50	\$15.00	\$1.50	\$7.50	\$13.50	\$1.25	\$6.50	\$11.50
Select Untested	2.25	9.50	18.00	1.75	9.00	15.00	1.50	7.50	13.50
Tested	3.00	16.50	30.00	2.50	12.00	22.00	2.00	10.50	18.50
Select Tested	3.50	19.50	35.00	3.00	16.50	30.00	2.75	15.00	21.00

Select tested, for breeding, \$7.50.

The very best queen, tested for breeding, \$15.00.

I sell no bees by the pound or nuclei, except with high-priced tested and breeding queens.

Queens for export will be carefully packed in long-distance cages, but safe delivery is not guaranteed.

JOHN M. DAVIS, Spring Hill, Tenn.

Beekeepers Take Notice

For thirty years we have specialized in the manufacture of **Sections** from the whitest selected Wisconsin basswood

We also manufacture hives, supers, frames and shipping cases

Write for our free illustrated catalog

Marshfield Manufacturing Company
Marshfield, Wisconsin

Meetings and Events

(Continued from page 283)
about beekeeping. The first telegram was from Bristol, Connecticut, and the next from Denver, Colorado. Much more of this work should be done.

Mississippi Cleans Up

A recent report of the Mississippi Plant Board conveys the welcome news that American foulbrood is now apparently completely eradicated from that state. While new cases will probably appear, it is expected that they will be promptly cared for and the state kept clean.

Merrill to Massachusetts

As announced in our May issue, Dr. J. H. Merrill has resigned from the Kansas College of Agriculture to engage in fruit growing and beekeeping. His present address is Wilbur street, Raynham, Mass.

Try It

Alto Booth Dunn, in her department in the Breeders' Gazette, recommends honey on pumpkin pie. She says it is better than whipped cream. Try it next time cook serves pumpkin pie.

Worker Comb On Drone Foundation

Here is a fine sample of what bees will do, when their intentions are frustrated. This is from our old friend J. F. Diemer:

"A full sheet of drone foundation was given to a four-comb nucleus that was simply running over with bees, and had 3 combs full of worker brood, mostly capped over, with a 2-year-old queen that seemed to be a good layer at a time of the year when other queens were laying eggs in drone comb.

"First the bees built about two inches of worker cells at the bottom of the drone foundation and the queen laid in every cell; meanwhile they worked on the foundation and changed it so they could rear worker bees in the cells. Finally the queen laid eggs in practically all of it, which hatched as workers, except about 20 drones.

"I am going to winter this queen and try her again next year with drone foundation."

(We have never known of bees changing worker comb into drone comb or drone comb into worker; but it is evident that foundation does not altogether hinder them from changing the comb, although this is so rare that it is worth noting when it happens. Readers will note that the comb thus built is very irregular.
—Editor.)

Free Transportation with Bees

The Union Pacific Railway allows free transportation, one way, for one man, to accompany a carlot shipment of bees. Similar applications are pending with the C. B. & Q. and the Santa Fe.

JUNE PRICES

Good Three-Banded Queens That Gather a Profit

Good Untested, one grade	\$.75 each
25 for	.70 each
50 for	.65 each
100 for	.60 each
Tested Queens, good quality	1.50 each
Extra Select Tested	3.00 each

Only good queens are mailed. All poor queens are culled out and killed

D. W. HOWELL, Shellman, Ga.



Pack your Honey in "Diamond I" Jars

YOU have a good product. Why not let it win its way through the enhancing surfaces of "Diamond I" Honey Jars? The clear fluted walls of these flint glass containers display your product to the best advantage.

Along with the $\frac{1}{2}$ -lb. and

1-lb. sizes, "Diamond I" Honey Jars are now available in a new 2-lb. size. Equipped with tight-fitting caps and packed two dozen to the case in corrugated re-shipping cases.

Any of the following beekeepers' supply houses can take care of your requirements:

DISTRIBUTORS:

G. B. Lewis Company,
844 N. Front St.
Memphis, Tenn.
G. B. Lewis Company,
Watertown, Wisconsin.
G. B. Lewis Company,
415 S. St. Francis St.,
Wichita, Kansas.
Texas Honey Producers' Ass'n,
San Antonio, Texas.

Dadant & Sons, Hamilton, Ill.
G. B. Lewis Company,
10 Tivoli St., Albany, New York.
G. B. Lewis Company,
408 Twelfth St., Lynchburg, Virginia.
G. B. Lewis Company,
23 W. 3rd St., Sioux City, Iowa.
A. G. Woodward Co.,
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Caucasian Queens

Mr. Honey Producer, you know the pleasure in handling gentle bees and at the same time have the very best of honey gatherers. Caucasian Bees are the gentlest of all, and are with many honey producers giving the best satisfaction. We are rearing queens of this race and no other, and will sell you queens of pure stock, purely mated, of the best breeding. Write for prices.

BOLLING BEE CO.

Zed Gafford, Proprietor, Bolling, Ala.

Thank You

We have enjoyed a good business. We hope we have pleased you; that was our aim.

We have sold our business to the Southeastern Bee Company, of which we will be general manager for the balance of the season and perhaps longer, and hope you will feel free to call them when in need of anything in the bee line, as this firm will be in better shape to handle your business than we have been in the past.

W. E. BUCKNER

Mt. Vernon, Georgia

Golden Queens and Banded Bees

Untested queens	\$1.00 each
Tested queens	1.50 each
Bees	\$1.50 per lb.
Nucleus	\$1.50 per frame
Bees inspected; free from disease.	

J. W. SHERMAN

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Carload quantities of Root goods and Airco foundation stocked here in Mitchell, to insure the best of service.

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Iowa Queens

From the best stock reared in the best way, mated in strong nuclei.

1925 Prices

Untested, 1, \$1.15; 10 or more, \$1.00

Tested, 1, \$1.75; 10 or more, \$1.60

Will begin shipping about June 1st. Queens shipped in long-distance cages. Safe arrival and pure mating guaranteed. Please order early to help give you better service.

Valley Apiaries, Lamoni, Ia.

ORIN STANLEY

BIG, BRIGHT, NORTHERN BRED ITALIAN QUEENS

Bred for beauty, gentleness and honey-gathering qualities.

Delivery begins June 1. Untested, \$1.00 each.

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R. D. No. 3, Cassopolis, Mich.

Comments Concerning Foulbrood

By Leslie Burr.

CAN American foulbrood be eradicated from the country? Beekeepers have been asking and trying to answer this question ever since practical beekeeping began.

I doubt that there is any disease with which mankind has to contend that can be more easily eradicated, but I expect foulbrood will have just as prosperous a time in the near future as it has had in the recent past.

Although the eradication of foulbrood from a colony of bees is a very simple matter, the average apiarist will not exercise the care necessary to make a clean job when treating his bees. In fact, I have known foulbrood inspectors who, at the time I met them, had had the disease in their apiaries over a period of years. My opinion of them, formed at the time I met them, was that, if left to themselves, they never would eradicate the disease from their apiaries.

Disease Cannot Be Eradicated By Law

Adequate laws are essential to government. This is a matter against which there is no valid argument. Without laws and regulations, and adequate provisions for their enforcement, we have anarchy, be it town, county, city, state, national or international. But (and here is the point that is so often lost sight of) people cannot be made moral, honest or efficient by law. Also, there are bad, foolish and impractical laws as well as good and proper ones.

Now, for many years there have been foulbrood laws in force throughout the country, and I venture the statement that foulbrood has spread faster and farther since the enactment of such laws than it did in the years previous. In many instances disease has been spread by beekeepers in their attempt to comply with orders to treat their bees. For the man who is capable of treating foulbrood successfully, no law or inspectors are necessary. The man who will not, on his own initiative, exercise the care essential to successful treatment cannot be depended upon to do a clean job just because he has been ordered to treat his bees.

I have met, at various times, a number of men who, when it came to producing crops of honey, were successful beekeepers on a large scale, but, when they had to deal with foulbrood, they were not successful. They were either ignorant or careless, or both.

The Careless Beekeeper

All there is to treating a colony for foulbrood is to put it in a clean hive and take care that none of the honey from the diseased colony is gathered by bees. The treatment for no other disease is more simple. But to allow robbing at the time the colony is treated, or to allow the combs from the diseased colony to be robbed after they have been removed, means infection, and every

beekeeper who has read up on the subject of foulbrood treatment knows it. But the trouble is they cannot be depended upon to govern their actions accordingly. For instance, two of the best read apiarists that I have ever met—both of them men who were conversant with the literature in English and other languages and who, in years gone by, were frequent contributors to bee journals—were put out of business by foulbrood. They were familiar with just about everything that had been written on the subject, and knew exactly how foulbrood should be treated. But when it came to putting their knowledge into practice, they would not use the necessary care. All that they did was to spread the disease. They would both treat the diseased colonies in a business like manner, and then, after they had the bees in clean hives, would stack up the diseased combs and in the end allow them to be robbed out. I never knew either of them to ever get around to cooking up the combs.

Burning the Best Method.

Personally, I have never burned a diseased colony, and I have, at various times, had to do with the treatment of something like 1200 colonies. My practice has been to cook up all the combs from the diseased colonies and sterilize the hives at once, the rule being that when the sun came up the next morning there would be nothing left from the colonies treated the day before that could cause infection. But for the man who will not follow such practice, or some other practice equally safe, there seems to be but one sure method, and that is a bonfire.

Sterilizing the Combs

What about sterilizing foulbrood combs? That is a question which will, no doubt, arise at once after reading the foregoing paragraph. If a man cannot make a clean job of treating his colonies when he cooks up the combs, sterilizing them is not going to help any. For example, a man treats ten colonies and as a result has a hundred combs to sterilize. He makes a tank to take ten combs; it takes 48 hours to sterilize a set. That means that he will have to keep his tank working continuously for 20 days to treat the combs from his ten colonies, and during all that time those untreated foulbrood combs are a possible source of infection. Now, to cook the combs will take but an hour or so, and then all danger is past. My observation has been that a very small per cent of beekeepers have absolutely bee-proof honey houses, and occasional robbers in a honey house is the rule. With robber bees about, a super of sticky foulbrood combs is a modern "Pandora's Box" waiting for someone to lift the lid and turn the evils loose on the bee world.

With extracting combs, however, it is another story. They can be treated in the winter, or prior to

SUPERIOR ITALIAN QUEENS

Prompt Shipment; 3000 Nuclei: Absolute Satisfaction Guaranteed

To June 15: Untested, \$1.00; 10, 85c; 100, 75c. Tested, 50c more.
After June 15: Untested, 1, 80c; 10, 75c, 100, 60c. Tested, 50c more.

THE STOVER APIARIES

Tibbee, Miss.

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Root Service from Chicago

When you get *Root Quality Bee Supplies* from the greatest shipping center in America, you get satisfaction. You get a superior grade of goods in quality and workmanship. Twenty-seven railroads mean quickest service for you. Write for our new 1925 catalog. Let us quote you on your wants.

A. I. ROOT COMPANY OF CHICAGO
224-230 WEST HURON STREET, CHICAGO, ILL.

Leininger's Strain of Italians

We have been queen breeders for nearly 50 years. In all this time we have tested nearly every strain of Italian bees in the U. S. A. By this careful selection and breeding we have succeeded in producing a strain of bees surpassed by none but superior to many, bees that are gentle and great honey gatherers.

Therefore, if you buy queens from us you may be assured that back of them are nearly 50 years of careful breeding for the production of honey.

As we are located in a red clover belt, it is but natural that our bees should have a long-tongue reach. We will sell queens from this superior strain as follows:
Untested, 1 to 5, \$1.00 each; 6, \$5.50; 12, \$10.50; 100, \$85.00.
Tested, \$1.50 each; 12, \$15.00; select breeders, \$5.00 to \$10.00 each.

Safe arrival and satisfaction guaranteed

FRED LEININGER & SON, Delphos, Ohio



A. D. HIETT
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CAR LOTS OF Lewis Beeware, Dadant's Foundation In Lynchburg, Virginia, ready for shipment

There has never been a time since a Lewis branch was established in Virginia when we were in such good shape for stock and help to care for your orders.

Lewis branches are owned entirely by Lewis and operated by paid employes of the G. B. Lewis Company. No one else is entitled to the use of the Lewis name. This insures complete stocks and careful attention to your orders under the Beeware guarantee. Get our special offer on Dadant's Wired Foundation and Lewis Slotted Bottom Bar Frames.

G. B. LEWIS COMPANY
Home Office and Works, LYNCHBURG, VA.
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Achord Queens

Splendid honey producing Italians. Reared in one of the largest, best equipped queen rearing and package shipping establishments in the South.

Select young laying queens, untested, 75c each. Any number. Tested queens, \$1.50 each. Any number.

Promptly mailed to you in large mailing cages with 1925 inspection certificate. Safe arrival guaranteed.

W. D. ACHORD

Fitzpatrick, Ala.

"WE'VE GOT IT"

And we promise 24-hour service, too. Large and complete stocks of Root Guaranteed Quality Supplies.

FOLSAND BROTHERS

Oldham, South Dakota.

Substantial Reduction in Price

With the same standard of Quality and Service

One Unit. Italian Queen, 75c; fifty or more, 65c each.

One 2-pound Package with Queen, \$4.00; ten or more, \$3.70 each.

Safe arrival and satisfaction guaranteed

Jno. C. Hogg, Ramer, Ala.

MOTT'S NORTHERN BRED ITALIAN QUEENS

Select untested, \$1.25 till June 1st, \$1.00 each thereafter. Select tested, \$2.00. Virgins, 50c. Michigan borders onto Canada. Save the long trip. No disease. Satisfaction and safe arrival guaranteed. Selected queens only.

E. E. MOTT,
Glenwood, Michigan.

treating the apiary, and, under such conditions, not to save good combs by sterilizing them would be almost criminal.

Federal Control of Foulbrood

The latest remedy proposed by those who have the idea that foulbrood can be eliminated by law is to have a Federal law passed and have the work carried on by the United States government. It is possible for Congress to pass such legislation if enough pressure can be brought to bear upon the members of the House and Senate. Under enough pressure, Congress will pass almost any kind of a law, as history shows.

However, under our theory of government, foulbrood among bees as it now exists is no more a matter for federal control than are mumps or whooping cough among children. To keep disease from entering our country is a federal matter. Likewise, to stop some epidemic, such as the foot and mouth disease, from spreading to other states after it has entered. But it is not ordinarily a federal matter to deal with local conditions. If it were there would be no need for our having state, county, city or town governments. The Washington government would be sufficient.

No Chance for Federal Legislation

As to the possibility of having Congress enact foulbrood legislation, with an appropriation as has been advocated, the chances are a thousand to one that such an act of Congress cannot be secured within the next twenty years. I have had occasion to observe the workings of our United States Congress for a number of years, and my opinion is that it will take more time, money and labor to induce Congress to pass the proposed legislation than it will to clean up foulbrood in the land.

Federal Action Not Practical

There is also a practical side to the treatment of foulbrood that will make federal action impractical. If the bees are to be saved and a crop of honey secured, bees should be treated under conditions that generally continue for but a few days. Treating all the diseased colonies in one state each year, as has been advocated, it would take fifty years to get over the ground once. Then there is the matter of the trouble and expense involved in securing a competent force of men, and this would have to be done each season, as it would not, in the nature of things, be possible to keep the force intact from season to season.

What Nature of Law Is Best?

Personally, I have never taken any part in the enactment of foulbrood legislation, nor have I ever had any desire to do so. Frankly, I doubt that, on the whole, foulbrood legislation has benefited the practical beekeepers of the country. If a man is a real beekeeper he is fully capable of treating his own bees should disease appear. He is his own inspector.

The man who has to be ordered to treat his bees is more apt to spread the disease than not. I do not be-

lieve in ordering people to save their own bees, particularly when they are not capable of following instructions and so do damage to their neighbors by their efforts.

If we have to have foulbrood laws and inspectors, and I suppose that such are a necessary evil in some districts, put the matter of cleaning up each district under the supervision of a competent local beekeeper—some man who has already cleaned up disease in his own yard.

Registering Colonies of Bees

It has been advocated recently, as a means of controlling foulbrood, that laws be passed in the various states requiring the owners of bees to register every hive.

Such a proposition is a piece of foolishness. Some legislative bodies may enact it. The California Legislature of 1913 enacted a law regulating the size of bed sheets, and made it a penal offense to use bed sheets that were not of legal size. (Just how many inspectors of bed sheets are employed by the state I have never ascertained.) So I suppose there will be but little difficulty in some states in securing the passage of a law requiring colonies of bees to be registered and providing for a book in the county recorder's office to be known as "The Book of Bees." Then, every time the beekeeper hives a swarm of bees or makes a nucleus he will be required to hurry over to the county recorder's office and pay four bits or a dollar to register such colonies. Then, when a colony dies during the winter, a swarm absconds, or two weak colonies are united, another trip to the recorder's office and the payment of some more four-bit fees to have entries showing that colonies of bees previously registered no longer exist. Also, such a law would be ignored by the man with a box hive in the fence corner.

California.

T. B.

Mr. Burr Comb,
American Bee Journal
Hamilton Illinois

dear Burr $\frac{1}{2}$ a Firn Busted and at thee sail i boughr A nEW Typeritter And wanttoo shew yew how i can rite now i ruther sling Soft Soapethab to maek A Kick But i tHink thare is A Fellow in Your Bunch that outto bee Showed Ppp. his name in kale off cours he's stuck Up and speels it with a e butt he is kale all thee same even If he does think He Is Some pUnkings well now whatt mi kik is about IS THIS! wel i made a bett witj Him or rathur HE Made one With Me he bett Me A Cookie now i'll bee fair and acknowldge i lost and like The Man i try too bee but dont always be it well i sent Himm A Cookky with A Raisin right In the senter] of cours i looked fro A Leter telling me what A Good Spoart i am but did i git it* i shouf Say Knot He just rights too Me and He says (they hant no honney) In Thet Cooky And so be jiggered if i eat it) now that was An Insult and i Want too no what yew goin too dew about it³%

Ours; Truelyc
A B Guhm,

To Make Beekeeping Studies On Delaware Coast.

How far will a honeybee fly from the hive for food? What is the economic limit to the distance the insect can travel for raw material? By what means does it find new fields of nectar-yielding flowers? These are a few of the time-worn questions which will be studied intensively during this May and June by the United States Department of Agriculture. A carefully planned experiment will be conducted on the coast of Delaware, in a region having no nectar-secreting flora. The office of Bee Culture Investigations of the Bureau of Entomology announces that one of the principal objects of the work is to determine the effect various weather conditions have on the flight activities of bees.

As the countryside has no flowers that will divert the attention of the bees, their flight can be readily controlled by the placing of supplies of artificial food. This "honey" flow will be kept constant and as a result any variation in the flight activities will be caused primarily by prevailing weather conditions. Automatic feeders containing sugar solution of known specific gravity will at first be placed at distances from the hives varying from one-eighth of a mile to three miles. There will be ten colonies of Italian bees, each colony on a scale so that variation in the weight may be studied. Records will be made of the increases in weight during the day to learn the hour-to-hour variation in the honey income. Records of loss of weight by evaporation at night will give information on the "ripening" of honey.

The feeders will gradually be moved to greater distances from the colonies to determine the limit of flight and the effect of distance on the production of honey—an economic factor from the standpoint of the bees and also from that of the beekeeper. Some feeders loaded with sirup will be placed in new and secluded places to determine if possible the methods followed by the bee in searching for new sources and the time taken to find them.

These and other obscure factors concerning the behavior of bees puzzling to beekeepers since antiquity, if solved, should prove of much benefit to the industry.

Norman Phillips Keeping Bees

Norman Phillips, younger brother of Dr. E. F. Phillips, and formerly professor of apiculture at Massachusetts Agricultural College and at Penn State, has entered commercial beekeeping in Madison County, N. Y., with headquarters at Cazenovia. We wish him the best of success in his enterprise.

GOLDEN AND THREE-BANDED QUEENS

Untested, \$1.00 each, or 6 for \$5.00, or 12 for \$9.50, or 100 for \$75.00. I guarantee safe arrival, satisfaction, and ship nothing but the best.

G. A. TAYLOR
Box 9, Luverne, Alabama



Honey Sells Itself

—If properly displayed in glass jars having no panels to shadow and darken the contents.

Thousands of tourists this summer will be supplied from roadside stands with honey in

H STANDARD HONEY JARS

Insist upon Glass Jars

Let our Honey Jars be your Silent Salesmen

Order through our distributor or our main office

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Hoffman & Hauck, 1331 Ocean Avenue, Woodhaven, L. I.

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HAZEL ATLAS GLASS CO. DESIGNERS AND MANUFACTURERS

WHEELING, W. VA.

Mack's Queens

Perhaps you have been reading our ads for a number of years back and wonder what kind of queens we sell. We pin so much faith on them that we are almost assured that once you try them we have no need to worry about your future orders. For when you get something GOOD you will remember where you got it. We suggest that you try them alongside any queens now listed on the market, regardless of price, race, breed or color, and see for yourself. Were it not for the many favorable reports and the repeat orders we get from beekeepers all over the United States and Canada, we would hardly feel like urging you to make such comparisons.

Select untested only \$1.00 each; \$10.00 a dozen; \$75.00 per hundred.

Everything guaranteed but safe introduction, and we include good and efficient directions for that.

HERMAN McCONNELL, Robinson, Illinois

(The Bee & Honey Man)

Leather Colored Italian Bees and Queens ROOT AND MOORE STRAIN

100 Queens at \$.75 each 25 Queens at \$.90 each
50 Queens at \$.80 each Less Queens at 1.00 each

Packages \$2.50 per 2 pounds

Delivery after March 1st. Satisfaction guaranteed.

ROY C. PATTEN
King's Lane, Whittier, Calif.

Long lived bees are profitable. I know that my principal breeder queen is not less than four years old and still going strong. Get prices of her daughters.

R. V. Stearns, Brady, Texas

Superior Italian Bees and Queens

Untested queens, each, \$1; 12 for \$10; 50 for \$40; 100, \$75.00.
Tested queens, each, \$1.25; 12 for \$15; 100 for \$100.
Breeding queens, each (nothing better), \$5.
Bees, 2-lb. package, including untested queen, each, \$3.50.
3-lb. package, including untested queen, each, \$4.50.
If wanted, will include frame brood and honey, \$1.00 each.
We breed Italian three-band and leather-colored bees only.
Safe delivery; satisfaction; no disease.

Plantersville Apiaries,

Plantersville, Miss.

QUINN'S QUEENS OF QUALITY

Have no superior. "There's a reason": They are Mendelian bred. GRAY CAUCASIANS, GRAY CARNIOLANS, BRIGHT 3-band ITALIANS. Separate apiaries; no disease. By natural laws of heredity the best are produced and maintained. Expert selective breeding and surplus honey attests its merits. Strong, hardy, vigorous, prolific, very gentle. A trial will convince YOU of their value.

CHAS. W. QUINN, Powhatan, Va.

Knight's Line-Bred

Pure Three-Banded
Leather-Colored Italian

QUEENS

PACKAGE BEES

For hardiness, prolificness, gentleness and honey gathering qualities they cannot be excelled. Several northern beekeepers inform me my queens cleaned them of European foulbrood last season, enabling them to secure a honey crop.

All queens guaranteed mated pure, and to give perfect satisfaction. Can still make immediate shipment two-pound packages bees with queens, price \$5.00 F. O. B. buyer's address.

Prices. Select (one grade) untested

1 to 4	\$1.00 each	10 to 14	.80 each
5 to 9	.90 each	15 and more	.75 each

JASPER KNIGHT, Hayneville, Alabama

HEIM BEE VENTILATOR

is constructed of selected, first quality cypress and rust-proof galvanized screening, and owners are assured a life equal to the most durable bee hive.

Provides a Colony with a Free Circulation of Air

By the use of the Heim Bee Ventilator you may place your bees in the hot sun and be guaranteed more honey per colony. The Heim Bee Ventilator keeps the honeycomb from melting down into the hive; it helps cure the honey; discourages bees from robbing each other; assures less swarming, and in every way makes more and better honey production.

100 Ventilators, each \$1.15 25 Ventilators, each \$1.25
50 Ventilators, each \$1.20 Single Ventilators, each \$1.50

For further information regarding the Heim Bee Ventilator, write for booklet entitled "The Heim Way."

Heim Bee Ventilator Co. THREE RIVERS, TEXAS

Crop and Market Report

Compiled by M. G. Dadant.

For our June report for the American Bee Journal we asked correspondents to answer the following questions:

1. Condition of bees.
2. Honey plant and weather conditions.
3. Honey crop so far.
4. Carry-over of old honey.
5. What is your idea of probable crop compared to last year?

CONDITION OF BEES

There is a remarkable similarity of answers as to the condition of bees in practically all of the United States. This is to the effect that bees are at least in normal condition for this season of the year and in many cases are far stronger in numbers than is usual for the middle and latter part of May.

There is an occasional report of bees being extremely short of stores, which is not uncalled for when we consider that they are so strong in numbers and that the crop has not, as yet, at this date (May 20) materialized.

HONEY AND WEATHER CONDITIONS

There is also considerable of a similarity as to the honey and weather conditions throughout the United States. I was surprised to learn that there are so many localities suffering from the extremely cool weather, and the combination of this with dry will affect the honey crop.

In fact, if we would believe reporters, the eighteenth amendment is in force strongly in all parts of the United States except possibly Missouri, where our friend Diemer states that they have been having too much rain.

We do not believe that the lack of rain has as yet seriously affected the honey plants, although, of course, it means a deficiency of moisture in the ground, so that in case we should have a dry June and July it would mean a cutting short of the honey crop.

Practically the whole north half of the United States, except possibly Ohio and parts of Indiana, are expecting better things than a year ago. In fact, the prospects for honeyflow from white clover are extra good throughout the white clover region in case the weather conditions are favorable from now on. We do not remember since the Crop and Market page has been going in the American Bee Journal when there has been such a general optimistic view of the honey conditions throughout the central and eastern United States as there is this year. By the time this number reaches our readers the white clover honeyflow should be in its beginning and the die cast as to whether or not there is going to be a good yield this year.

Indications are that with favorable conditions there should be an extremely good yield from this source, which will, of course, be added to by the large acreages of sweet clover being sown now. Many beekeepers are now depending entirely upon sweet clover for their nectar surplus instead of on white clover, as formerly.

Even Texas appears to be coming back to normal owing to recent rains. One or two reports are to the effect that the crop will be extremely short, especially in western Texas, but others are still in hopes that the recent rains may yet bring a fair honeyflow, although probably not as good as a year ago. The southwestern states, Arizona and New Mexico, are still suffering badly from drought, as is also Colorado, which does not expect much honey except in irrigated districts, unless rain should materialize soon.

Probably the worst gloom pervades in southern California, where the dry weather still continued at last reports (May 12). Northern California is good, as are the northwestern states.

Reports from Canada, of course, indicate that the season is yet early, but that prospects are very good indeed there also.

There has been considerable damage to bees this year from fruit spraying. The Washington and Oregon beekeepers, located in the large orchards, are reporting, in several instances, great loss of bees, and this has also been reported for Pike county, Illinois, in the section

around New Canton, where large orchards were sprayed in the middle of bloom instead of as the petals fell.

We have been approached by several readers as to the possibility of getting laws passed prohibiting the spraying of fruit trees during bloom. We believe, however, this is a matter of education on the part of the fruit growers and that more can be accomplished by making them see the error of their ways than by forcing them to any definite time of spraying.

CARRY-OVER OF OLD HONEY

It is remarkable how little honey is being carried over into the new crop year. We learn of one car of comb honey in Montana and a few cars of extracted honey in Idaho and Washington, with possibly three or four cars of extracted also in the inter-mountain territory.

Outside of this, there is extremely little honey being carried over into the new crop year, which bodes well for such crop as we may have this year. The eastern states are well cleaned up of honey and are able to dispose of their new lot without any difficulty.

THE HONEY CROP SO FAR

The southern regions of the United States are unable to report on the honey crop so far. In southeastern United States and Florida the early prospects were extremely good, but the crop has not materialized and will not be nearly as large as it was a year ago. In fact, some reporters indicate that it will not be over 50 per cent of 1924.

In Texas the crop is very late owing to the dry weather, and there has been little surplus gathered so far—very much less than a year ago, although the prospects are satisfactory and expectations are still for a fair crop.

In California the orange crop has been about 60 per cent of 1924, with the demand extremely good.

In the northern half of the United States the early yielding honey plants, such as fruit bloom, dandelion, etc., have not been as good as usual owing to the extremely cold weather during the blooming period.

This has necessitated considerable feeding on the part of beekeepers to keep the bees building in good shape for the crop.

THE PROBABLE CROP

We know of no year where the prospects for crop have been so greatly dependent upon the weather as they are this year. There has been a deficiency of rainfall so far, so that dry weather continuing would mean practically no crop in the northern half of the United States, and we might say the same thing of the south as well. On the other hand, honey plants are in extremely good shape, so that a fair amount of rainfall, with favorable weather from now on, would mean a bumper crop in the clover regions. All in all, it looks like there would be a bumper crop of white clover produced this year in case favorable weather conditions materialize during the nectar producing period.

This is going to be balanced, in a measure, by the short crop in the southeast and also possibilities for a short crop in Colorado, Arizona, New Mexico and southern California. All in all, reporters would indicate that the crop would be considerably in excess of the one last year, the amount depending greatly upon the climatic conditions in the next six weeks.

We hope, in our July issue, to be able to give a rather comprehensive, preliminary survey on what the crop has been to that date and also an indication of a line on prices which should be asked for honey during 1925.

We see no reason, however, for any great slump in honey prices, and if there is any break it should be in the jobbing prices rather than the retail price of honey, since there is not too great a spread, at present, between jobbing and retail when we consider the cost of distribution from producer to consumer.

Heavy frost, also, in the northern half of the country has materially reduced the possibilities of a large fruit crop, causing honey to be in greater demand this season. Reports, of course, as to the possibility for fruit are yet incomplete.

CLASSIFIED DEPARTMENT

Advertisements in this department will be inserted for 5 cents per word, with no discounts. No classified advertisements accepted for less than 35 cents. Count each initial or number as one word.

Copy for this department must reach us not later than the 15th of each month preceding date of issue. If intended for classified department it should be so stated when advertisement is sent.

As a measure of protection to our readers, we require references of all new advertisers. To save time, please send the name of your bank and other references with your copy.

BEES AND QUEENS

SIMMONS QUEENS—Golden and three-band ready now. One, \$1.25; six, \$7.00; twelve, \$13.00. Two-frame nucleus, \$4.50; three frames, \$6.00. No disease. Satisfaction guaranteed. Fairmont Apiary, Livingston, N. Y.

BOOKED TO CAPACITY ON PACKAGES—Why? Order a queen and find out. \$1.00 each; six for \$5.00 J. J. Scott, Crowley, La.

ITALIANS—Strong, hardy, vigorous. None better, few equal. Untested, \$1.00; tested, \$1.25. No disease. Chas. W. Quinn, Powhatan, Va.

GOLDEN ITALIAN QUEENS—Untested, \$1.00; 6 for \$5.40; 12 or more, 80c each. Tested, \$1.50; select tested, \$2.50. Apiary inspected by state inspector; no disease found. Safe arrival and satisfaction guaranteed. D. T. Gaster, Rt. 2, Randleman, N. C.

FOR SALE—Italian queens; untested, 1 to 10, \$1.00 each; 11 to 25, 85c each; more than 25 75c each. Tested, \$1.50 each. Satisfaction guaranteed. Ready to ship June 1 to June 10. R. B. Grout, Jamaica, Vt.

PRIZE WINNERS—Three-band select untested queens, \$1.00 each; 6 for \$5.00. W. S. Johnson, Alexandria, La.

FOR SALE—Italian queens ready May 15. One queen, \$1.00; 6 queens, \$5.50; 12 queens, \$10.00. W. W. Tally, R. 4, Greenville, Ala.

NORTH CAROLINA Bred Italian Queens of the Root strain of Italian Bees—Gentle and good honey gatherers. No disease. From May 10 until July 1, untested, \$1.00 each; \$10.00 per dozen. Tested, \$1.50 each; selected tested, \$2.25 each, and breeders \$10 each. Safe arrival and satisfaction guaranteed. L. Parker, R. F. D. No. 2, Benson, N. C.

FOR SALE—Three-band Italian queens that produce hardy and gentle bees, ready to mail by May 20. Untested, \$1.00 each; 6, \$5.50; 12, \$10.00. Tested queens, \$2.00 each. Safe arrival and satisfaction guaranteed. Robert B. Spicer, Wharton, N. J.

GOLDEN ITALIAN QUEENS—The gentle and bright kind. Untested, \$2.00; dozen, \$14.00. Tested, \$4.00; breeders, \$5.00 to \$20.00. J. B. Brockwell, Barnetts, Va.

PRIZE WINNERS—Three-band queens and bees. Select untested queens, \$1.00 each; 6 for \$5.00. Two-pound combless packages, including select untested queen, 1 to 9, \$3.50; 10 or more, \$3.25. None better at any price. I guarantee them to be hustlers. Health certificate accompanies each shipment. My shipping crates are made of well seasoned sap cypress and weigh 6½ lbs. each, including bees and feed.

W. S. Johnson, Alexandria, La.

COMBLESS PACKAGE BEES shipped on sugar syrup. Pure Italian stock with queen. Two-pound package, 1 to 10, \$4.25; 3-lb. package, 1 to 10, \$5.25. Write for prices on larger lots and nuclei. No disease and safe arrival guaranteed; 20 per cent books orders. Reference furnished.

John A. Williams,
Box 178 Oakdale, La.

EUREKA QUEENS—Highly disease-resistant, American bred, copper colored Italians. Untested, July, one \$2.00, six \$11.00, twelve \$20.00. Tested, \$15.00 each. Eureka Apriaries, A. C. F. Bartz, Mgr. Jim Falls, Wis.

PACKAGE BEES—Circular free. Van's Honey Farms Hebron, Indiana.

FOR SALE—Bees in 2-pound packages, with untested Italian queen to each, for \$3.00 each. Safe delivery and satisfaction guaranteed. Order now. Clyde Cobb, Belleville, Arkansas.

FOR SALE—Choice bright Italian queens. I have been building up this strain for the last 20 years for vigorous hustlers, good winterers, gentleness and fine color. These queens will equal the best on the market. Health certificate goes with queens. Prices: untested queen, \$1.25; 12 untested queens, \$12.00; 1 breeder, \$5.00. Emil W. Gutekunst, Colden, N. Y.

TRY Peterman's Queens. Bred from select breeders, raised in standard frame, strong nuclei, well laid up before caging and last and most important, I select out only the largest, thrifty layers to sell, killing all others. From experience, I know this pays. Am building a business on a square deal basis. Prices: 1, \$1.25; 6, \$7.00; 12, \$13.00; 25 at \$1.00 each; 100, 90c each. H. Peterman, Lathrop, Calif.

SHE-SUITS-ME QUEENS—Untested three-banders, \$1.00 each; 25 or more ordered in advance, 75c each. Safein cage with initial order. Allen Latham, Norwichtown, Conn.

BRIGHT three-banded Italian queens. Guaranteed in every way; 33 years' experience. Every queen a good queen. Price list sent on request.

J. F. Diemer, Liberty, Mo.

FOR SALE—Fine golden Italian queens, untested, \$1.00 each; tested, \$2.00. Ready for mailing May 20. Satisfaction guaranteed. J. F. Michael, Rt. 1, Winchester, Ind.

FOR SALE—Golden Italian Queens, untested \$1.00 each; 6 for \$5.40; 12 or more 80c each; tested \$1.50 each; select tested \$2.50 each. Apiary inspection and found no disease of any kind. Safe arrival and satisfaction guaranteed. Sam Hinshaw, Randleman, N. C.

FINEST Italian queens, \$1.00 each. Wm. R. Stephens, Wingate, Indiana.

SCOTT QUEENS for 1925. Our high-grade queens will be ready about June 1. Three-band only. Our queens are bred for heavy honey production. They get big crops for us and will for you. They are gentle too. One, \$1.50; six, \$8.00. Free circular. The Scott Apriaries, La Grange, Ind.

PURE ITALIAN QUEENS—Untested, \$1.00; tested, \$1.50; 2-lb. package, \$3.00. Add price of queen wanted. Safe arrival guaranteed after May 10. Write for prices on colonies.

Birdie M. Hartle, 924 Pleasant St., Reynoldsburg, Pa.

WARRANTED pure mated Italian queens, \$1.25 each; mailed in my sure introducing cages; no blacks or hybrid bees around here so the drones are pure Italian. Queens will be ready to mail about May 15.

Daniel Danielsen, Brush, Colo.

BEES AND QUEENS—Golden and three-banded Ready to ship March 20. Tested, each, \$1.00; 12, \$10.00; 50, \$40.00; 100, \$75.00. Untested, each 75c; 12, \$8.40; 50, \$32.50; 100, \$55.00. Satisfaction guaranteed. I. N. Bankston, Rt. 6, Dallas, Texas.

See my ad in display for three-band Italians. J. Allen, Catherine, Ala.

EDSON APIARIES are now booking orders for spring delivery of our renowned select untested queen bees at the following prices: One to fifty, \$1.25 each; fifty, \$57.50; 100, \$100. Prompt service and a guarantee embracing entire satisfaction of our stock.

Edson Apriaries, Gridley, Calif.

TEN YEARS of experience in breeding queens of quality Goldena, also gray Caucasians. Golden queens, one, \$1.25; dozen, \$11.50. Gray Caucasians, one, \$1.00; dozen, \$15.00. Pure mating. Safe arrival guaranteed in United States and Canada.

Tillery Bros., Rt. 5, Greenville, Ala.

LEATHER COLORED ITALIAN QUEENS—\$2.00; after June 1st, \$1.00. Tested, \$2.00. A. W. Yates, 15 Chapman St., Hartford, Conn.

TRY Peterman's queens for quality and a square deal. Circular free. H. Peterman, Lathrop, Calif.

BRIGHT ITALIAN QUEENS—One, \$1.00; 6 for \$5.00 or 12 for \$10.00. Write for prices on large orders or package bees.

P. B. Skinner, Greenville, Ala.

GOLDEN Italian Queens and Nuclei for 1925, the big, bright, hustling kind (the kind that gets the honey). Satisfied customers everywhere. Untested, \$1.00 each; 6, \$5.00; 12, \$10.00; \$75.00 per 100. Tested, \$1.50 each; two-frame nuclei with queen, \$4.50 each; 10 or more, \$4.00 each. Safe arrival guaranteed.

E. F. Day, Honoraville, Ala.

MERRILL'S QUEENS—\$1.00 each. R. E. Merrill, Muney, Pa.

FOR SALE—Golden queens producing bees yellow to tip; untested, \$1.00; tested, \$1.50; select tested, \$2.50. Disease free, safe arrival and satisfaction guaranteed.

Address H. G. Karns, Victoria, Va.

I AM now booking orders for my leather-colored Italian queens and package bees. Write for prices.

W. O. Victor, Jr., Uvalde, Texas.

EARLY PACKAGE BEES & QUEENS that make a surplus the first season. Most northern breeder in California. See larger ad. J. E. Wing, Chico, Calif.

PACKAGES with queen already introduced. Buy your packages with queens introduced and avoid loss. Best pure mated Italian queens. Guaranteed. State inspected. No disease. Let our circular tell you about them and explain the advantages of our package bees and introduced queens.

A. O. Smith, Rt. 12, Mt. Vernon, Ind.

PACKAGE BEES and three-band Italian queens that please. Our twenty years experience here in selective breeding of queens and the shipping of bees are at your service. No disease in this section. For prices, references, etc., write

Allenville Apriaries, Allenville, Marengo County, Ala.

GOLDEN THREE-BANDED and Carniolan queens. Tested, \$1.00; untested, 75c each. Bees in 1-pound package, \$1.50; 2 pounds, \$2.50; 3 pounds, \$3.25. Safe delivery guaranteed. C. B. Bankston, Box 68, Buffalo, Leon Co., Texas.

MY famous three-banded, leather-colored Italian Queens, one dollar each, or six for \$5.50. J. W. Romberger, 3113 Locust St., St. Joseph, Mo.

FOR SALE—Golden Italians bred for all the good qualities bees should possess as well as for color. Queens only, untested, \$1.05 each; 6 for \$5.50; 12 or more, 80c each. Postpaid and safe arrival insured. State certificate of health included.

Hazel V. Bonkemeyer, Randleman, N. C., Rt. 2.

TRY my Caucasian or Italian 3-frame nucleus, also queens, and be your own judge. The yard inspected by the requirements of the law. Italian queens 60¢ each by return mail.

Peter Schaffhauser, Havelock, N. Car.

**Prompt Service
Assured**



**Perfect Satisfaction
Guaranteed**

They are not pedigreed or registered, but just PURE ITALIANS; reared, mated and caged with the greatest care, from breeders that are unsurpassed as honey gatherers.

A trial will convince you of their superior quality.

Untested Queens,	1 or 100	\$1.00 each
Select Untested,	1 or 100,	1.50 each
Tested,	1 or 100,	2.00 each

Write for free descriptive booklet.

MAJORS NORDAN, Kimberly, Alabama



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Silent Salesman do it for you, for they are the boys that can do it; always on the job, and never get tired; "absolutely sanitary" and very attractive, the large Pyrax glass jar keeps it always in sight, and the water jacket and electric heater keeps it always ready for the customer in any amount they may desire. This is the cheapest and best method of dispensing Honeys or Syrups, as it not only sells, but advertises it as well.

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Burr Combs

The Shots We Miss

By Frank C. Pellett.

It is always the biggest fish that gets away. Did you ever go fishing without pulling a big one above the water only to have him give you the slip just before you got him landed? Life seems to be a tantalizing series of slips with just enough of achievement to keep a fellow interested in the game. The big order that seems within our reach suddenly goes to the other fellow, or the big crop which seems certain fails to materialize because it is too wet or too dry, or too hot or too cold, or perhaps merely because we failed to have enough supers ready and enough containers on hand to enable us to keep ahead of the bees.

This line of thought is suggested by a recent experience in the Arizona desert. It was a balmy day near the end of January and I was visiting with H. E. Weisner at his camp not far from Tucson. Weisner was bottling honey and we were enjoying the usual line of discussion when two bee-men met. Weisner and I found many things in common, including a love for birds. He had provided a watering place near the house and a surprising number of birds came there to drink.

Water is the measure of value in the desert. With an abundant water supply everything else comes easy; without it little remains. One may drive for long distances and hardly see a bird away from the water. Near a dependable supply there is a congregation of the songsters that is a delight to the nature lover. The birds of the southwest are new and strange to me. Few of the old acquaintances are to be seen there. The mourning dove and the marsh hawk, which are common to the Mississippi Valley, are also frequently seen in Arizona, but the greater number are never seen in the eastern states.

A Day With the Birds

Dozens of birds were coming to his drinking place, and at one time I counted thirty-five individuals of four different species perched, in nearby mesquite trees, in anticipation of quenching their thirst. The camera which has been my companion on journeys into more than forty of the

states was at hand and it seemed too good a chance to miss. I sorely wanted to secure a photograph of the Gambel's quail to show the boss.

A blind was hastily provided by placing a brown canvas across some crates that chanced to be near the water supply. Under this the camera was focused directly on the pan and I crawled under the canvas to await the coming of the birds. For some reason they were slow in coming. Flocks of finches and sparrows would alight in the trees, but they seemed strangely suspicious of my hiding place. Several Gila woodpeckers kept coming about and now and then one would alight near the water only to fly away again crying, "Look, look," and of course frightening all the other birds away.

When one lies in a cramped position it is difficult to avoid some movement. It seemed every time my bones were ready to crack and I made a slight movement to relieve the strain that some bird happened to be just ready to take a drink. Patience is always rewarded in due time, but the trouble is that we are seldom willing to wait long enough, whether for fish to bite or birds to drink. After what seemed hours of waiting, the house finches began to come down to drink. One would fly down and others encouraged by his example would come also. Seeing them, the woodpecker would come too, but only to repeat his warning, "Look, look," and away they would all fly. After a time I did succeed in making an exposure when the finches were drinking, and later the woodpecker became so thirsty as to overcome his caution and give me a chance at him, also.

Lost Opportunities

As the birds became less suspicious my eagerness overcame my better judgment and I lost some opportunities by waiting a moment too long. A canyon tohee approached the water and stopped a moment just before reaching it. Now was my time, but I waited for him to come nearer only to see him turn and fly away without coming back. There was no tohee picture. Weisner had said that the quails came every afternoon to get water, and sure enough they came, but were frightened away when I chanced to move just before they came within range of the camera. It was a long time before they returned,

but when they did they were too sharp to be fooled by my blind. They came near enough for me to see plainly every detail of their beautiful plumage, but turned and ran into the bushes before giving me a chance. I had missed another shot.

I spent much of the afternoon in the dust under the canvas in the hope of getting something fine. My clothes were dirty, but that was of little importance. The only exposures were of the commonest and least timid of the desert birds. I had missed all the big shots. Vividly stamped on my memory is the mental picture of that little flock of plumed quail as they turned away just outside the range of my camera.

As I look back over the years that have passed it seems to me that this experience is fairly typical of life; we miss all the big shots and only bring home the small game. However, someone has said that if we keep on fishing long enough we are bound to get a nibble now and then. If I had gone back again the next day and as many days after as became necessary to turn the trick, it would have been possible in time to get the desired picture of the plumed quail. We get the small game because there is more of it and it is easier to get.

Political Bunk

When I was a young man, several of us bought a Republican newspaper in a Democratic county and set out to elect Republican county officers so as to get the county printing. The county printing, by custom, was awarded to the newspaper which supported the men in office, a kind of public reward for political service. We whooped it up for the grand old party and succeeded in electing all the county officers except those who controlled the county printing. We had missed the big shot, and, having no seat at the pie counter, found the newspaper to be a very unsatisfactory source of revenue. Had we stuck to our guns we might have fared better the next time or succeeded in building up along other lines, but we didn't; the picking was too poor.

Every time we have a poor season a certain percentage of beekeepers who have not been in the game long enough to strike a big crop sell out and quit the business. I know one man who followed beekeeping for more than twenty years with indifferent success, who later amassed a comfortable fortune in honey production. He kept on shooting until he had improved his marksmanship. Life in the end gives us a fair return on what we put into it and seldom anything more. But I am still sorry I failed to get the picture of those quail.